ATP INDEX

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Learjet Corp.
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Structural Repair Manual

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Section	Topic
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MFG.

INTRO



Structural Repair Manual

Learjet 20/30 Series Aircraft

P.O. BOX 7707, MID-CONTINENT AIRPORT, WICHITA, KANSAS 67277-7707

SRM-4

May 15, 1992
Revised July 10, 1998 (Rev. No. 4)

1. Safety Advisory

WARNING: BEFORE USING ANY OF THE MATERIALS CALLED OUT IN THIS PUBLICATION, BE AWARE OF ALL HANDLING, STORAGE AND DISPOSAL PRECAUTIONS RECOMMENDED BY THE MANUFACTURER OR SUPPLIER. FAILURE TO COMPLY WITH THE MANUFACTURERS OR SUPPLIERS RECOMMENDATIONS MAY RESULT IN PERSONAL INJURY OR DISEASE.

This publication describes physical and chemical processes which may require the use of chemicals, solvents, paints, and other commercially available materials. The user of this publication should obtain the Material Safety Data Sheets (OSHA Form 20 or equivalent) from the manufacturers or suppliers of the materials to be used. The user must become completely familiar with the manufacturer/supplier information and adhere to the procedures, recommendations, warnings and cautions set forth for the safe use, handling, storage, and disposal of the materials.

RECORD OF REVISIONS

ATP

MFG REV NO	DESCRIPTION	ISSUE DATE	ATP REV DATE	INSERTED BY
4	See Highlights	7/10/98	10/1/98	ATP/KS

Record of Revisions	Date of Issue	Insertion Date	By	Record of Revisions	Date of Issue	Insertion Date	By
1	Jan 15/93	05/19/93	ATP/PRH				
2	Jun 1/95	08/24/95	ATP/JX				
3	Jun 6/98	07/23/98	ATP/ES				
4	Jul 10/98	10/01/98	ATP/KS				

RECORD OF TEMPORARY REVISIONS

TEMP REV NO	DESCRIPTION	ISSUE DATE	ATP REV DATE	INSERT BY	DATE REMOVED	REV INCOR	REMOVE BY
57-3	57-60-20:201	3/30/98	6/11/98	ATP/ES			
53-1	53-36-00:102	7/1999	9/16/99	ATP/VM	8/16/01	TR # 53-2	ATP/MG
54-1	54-30-10:4	8/13/99	10/28/99	ATP/KS			
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Rev. No.	Issue Date	Insertion Date	By	Rev. No.	Issue Date	Insertion Date	By
51-1	8/15/97	9/18/97	ATP/MB				
51-2	"	"	"				
57-1	"	"	"				
51-3	9/12/97	11/27/97	ATP/KS	3	6/6/98	7/23/98	ATP/MC
51-4	"	"	"	"	"	"	"
51-5	"	"	"	"	"	"	"
55-1	2/13/98	5/14/98	ATP/HP				
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53-1 53-2	6/15/01 7/1/01	8/16/01 "	ATP/MG "				

REV. NO.	DATE INSERTED	DATE REMOVED	PAGE NUMBER	REV. NO.	DATE INSERTED	DATE REMOVED	PAGE NUMBER
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51-2	Aug 15/97		51-70-01 Page 201				
51-3	Sep 12/97	Jun 6/98 Rev 3	51-71-10 Page 8				
51-4	Sep 12/97	Jun 6/98 Rev 3	51-71-10 Page 16				
51-5	Sep 12/97	Jun 6/98 Rev 3	51-71-10 Page 20				

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http://www.aerospace.bombardier.com

July 10, 1998

TO: Holders of Learjet 20/30 Series Aircraft Structural Repair Manual

SUBJECT: Revision No. 4, dated July 10, 1998

Revision No. 4 consists of a total reissue of the List of Effective Pages (LOEP) for chapter 51.

Revise the LOEP by inserting revised pages and removing superseded LOEP pages.

After inserting this revision, note necessary information on the "Record of Revisions" in the front of the manual.

Direct any questions concerning distribution (change in address, quantities, etc.) to Learjet Inc., P.O. Box 7707, Wichita, Kansas 67277-7707. Attn: Technical Data Control Center (MS 71). Telephone (316) 946-2393. FAX (316) 946-2580.

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Date: June 19, 1998

To: Holders of Learjet 20/30 Series Structural Repair Manual (SRM-4).

Subject: Correction to *Record of Temporary Revisions.*

Description: During development of Revision 3 to the 20/30 Series Structural Repair Manual (SRM-4), dated June 6, 1998, incorporation of Temporary Revisions 51-1 and 51-2 were omitted. Please retain TR 51-1 and TR 51-2, both dated Aug 15/97, to maintain the SRM-4 to the latest configuration. Notate the TR's in the Record of Temporary Revision.

Note: Temporary Revisions TR-51-3, TR 51-4 and TR-51-5 were incorporated in Revision 3.

Additional copies of TR 51-1 and TR 51-2 are available through Learjet Inc., P.O. Box 7707, Wichita, Kansas 67277-7707, Technical Data Control Center (MS 71), Telephone (316) 946-2393. FAX (316) 946-2580.

We at Learjet apologize for any inconvenience.

LEARJET INC.

Customer Support

STRUCTURAL REPAIR MANUAL

Chapter Section Subject	Page	Date
* TITLE		Jul 10/98
Squawk Sheet		
* Rec. of Revs.	1	Jul 10/98
Safety Advisory	1	Jan 15/93
* INTRODUCTION - List of Eff. Pgs.	1	Jul 10/98
INTRODUCTION - Contents	1	May 15/92
INTRODUCTION	1	May 15/92
INTRODUCTION	2	May 15/92
INTRODUCTION	3	May 15/92
INTRODUCTION	4	May 15/92

Chapter Section Subject	Page	Date

Insert Latest Revised Pages; *Destroy Superseded or Deleted Pages.*
* Asterisk indicates pages revised, deleted, or added by current revision.
The portion of the text affected by the current revision is indicated by a vertical line in the outer margin of the page.

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Scope	INTRODUCTION	1
Format	INTRODUCTION	1
Repairs	INTRODUCTION	1
Part Numbers	INTRODUCTION	1
Revisions	INTRODUCTION	1
Page Numbering System	INTRODUCTION	2
Source of Materials	INTRODUCTION	3

TEMPORARY REVISION NO. 51-7

MANUAL AFFECTED: Learjet 20/30 Series Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to the Introduction, page 1, dated May 15/92 and retain until further notice.

REASON:
1. Revise paragraph A. under 1. SCOPE.
2. Add new paragraph C. under 3. REPAIRS.

INSTRUCTIONS:
1. Update paragraph A. to read as follows:
2. Add new paragraph C. to read as follows:

INTRODUCTION

1. SCOPE

A. The function of this structural repair manual is to acquaint maintenance personnel with the acceptable structural repairs of the Learjet and to direct them in the proper procedures for maintaining the aircraft in an airworthy condition. The ability of maintenance personnel is recognized, and procedures that are considered common to all aircraft have been briefly referenced or omitted.

B. (No changes)

2. FORMAT (No changes)

3. REPAIRS (No changes)

A. (No changes)

B. (No changes)

C. The data provided in this Structural Repair Manual may be considered "data acceptable to the administrator" per CFR 14, Part 43. Ultimately it is the responsibility of the person returning the aircraft to service to determine the state of any repair made using this information with regard to the requirement for FAA approval and obtain FAA approval if required. With this in mind, it is recommended that early contact be made with Learjet Field Support Engineering so that the appropriate data may be provided in a timely manner.

All technical data provided by Field Support Engineering is based on information developed by the cognizant engineer. Verbal information provided in person or by telephone is considered advisory and does not carry any status relative to FAA approval. Written information provided by fax, memo, or e-mail is used when required to address "Minor" repairs or deviations to published data. "Major" repairs or alterations are addressed by released engineering drawings and are FAA approved when accomplished by a DER's 8110-3 form.

4. PART NUMBERS (No changes)

5. REVISIONS (No changes)

6. PAGE NUMBERING SYSTEM (No changes)

Learjet

STRUCTURAL REPAIR MANUAL

INTRODUCTION

1. SCOPE
   A. The function of this structural repair manual is to acquaint maintenance personnel with the approved structural repairs of the Learjet and to direct them in the proper procedures for maintaining the aircraft in an airworthy condition. The ability of maintenance personnel is recognized, and procedures that are considered common to all aircraft have been briefly referenced or omitted.
   B. This manual is to be used in conjunction with the applicable maintenance manual.

2. FORMAT
   A. This manual has been prepared using the Air Transport Association (ATA) Specification Number 100 as a format to guide repair personnel in the inspection and repair of Learjets.

3. REPAIRS
   A. Chapter 51 covers repairs that are common to more than one airframe structural section. These repairs are divided into "typical" and "special" classes. The typical repair section provides that data necessary for the repair person to develop his own repairs. The special repairs are located in their respective chapter and provide that data necessary to accomplish the repairs.
   B. Repair coverage for Chapters 52 through 57 is found in the repair indexes for each chapter. These indexes consist of master repair indexes or component repair indexes as applicable. Repair indexes give the Learjet drawing number, descriptive nomenclature, material data, and figure/reference number(s) for each item illustrated.

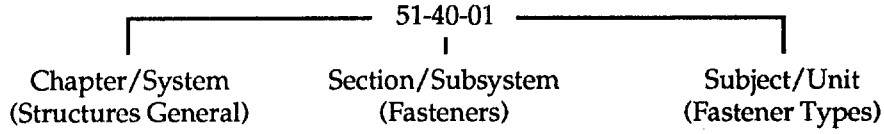
4. PART NUMBERS
   A. This manual must not be used for identifying spare parts by number. Consult the appropriate Learjet Illustrated Parts Catalog for this information. Part numbers are used in this manual only as a means of identification when the nomenclature alone is inadequate. The numbers are often incomplete.

5. REVISIONS
   A. The "List of Effective Pages" (LOEP) with each chapter serves as a tool for maintaining the manual. The LOEP will be revised whenever the material in the affected chapter is revised. When revision pages are received, the list should be used as a cross reference for inserting the new/revised material and deleting the obsolete material. This ensures that all obsolete material is destroyed and the manual is kept current. Revisions to text are indicated by change bars (vertical lines) in the outer margin of the page adjacent to the revised material. Revisions to illustrations may be indicated by change bars or pointing hands.

ATP® NOTE: Please see the TEMPORARY REVISION that revises this page.

6. PAGE NUMBERING SYSTEM

A. Page numbers used in this manual consist of three element numbers separated by dashes, under which the page number and date are printed.



B. Whenever the chapter/system element number is followed by zeros in the section/subsystem and subject/unit positions (51-00-00), the information is applicable to the entire system.

C. Whenever the section/subsystem element number is followed by zeros in the subject/unit position (51-40-00), the information is applicable to the subsystems within the system.

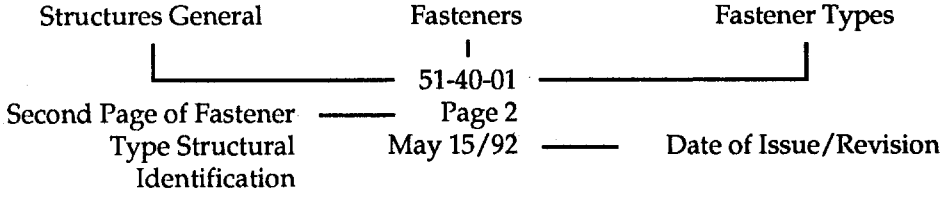
D. The subject/unit element number is used to identify information applicable to units within. The subject/unit element number progresses from the number -01 in accordance with the number of subsystem/units covered.

E. All system/subsystem/unit data is separated into specific types of information. Blocks of page numbers are used to identify the type of information as follows:

Pages	1 through 99	- Structural Identification
Pages	101 through 199	- Allowable Damage
Pages	201 through 299	- Repairs

F. Some units may not require all the information listed in these three blocks of numbers, in which case those blocks of numbers are omitted.

G. The following is a breakdown of a typical page number:



H. Illustrations use the same figure number as the page block in which they appear. As an example, Figure 2, will be the second illustration appearing in the structural identification section.

7. SOURCE OF MATERIALS

A. Manufacturers shown by federal vendor codes in tools and equipments lists in the chapters are listed in numerical order in Figure 1.

VENDOR CODE *	MANUFACTURER
01022	Lok-Fast, Inc. 864 W. 16th St. Newport Beach, CA 92663
05755	Phillips Screw Co. Div. of Rule Industries One Kondelin Road Gloucester, MA 01930
11815	Cherry/Textron Inc. Fasteners Products Division P.O. Box 2157 Santa Ana, CA 92707
16522	Dynatron/Bondo Corp. 2160 Hills Ave. N.W. Atlanta, GA 30318
16772	Martin-Senour Co., The Div. of Sherwin-Williams Co. 2500 S. Senour Ave. Chicago, IL 60608
17419	Deutsch Fastener Corp. 7001 W. Imperial Highway Los Angeles, CA 90045-3643
17431	DeVilbiss Co. P.O. Box 913 Toledo, OH 43692
24210	Learjet Inc. P.O. Box 7707 Wichita, KS 67277-7707

VENDOR CODE *	MANUFACTURER
25472	B.F. Goodrich 500 S. Main Akron, OH 44318
29666	Huck Mfg. Co. Sub. of Federal-Mogul Corp. 6 Thomas Irvine, CA 92714
30655	Amerace Corp. ESNA Division 2330 Vauxhall Road Union, NJ 07083
37676	Magnaflux Corp. 7300 W. Lawrence Ave. Chicago, IL 60656-3811
47695	PPG Industries, Inc. One Gateway Center Pittsburgh, PA 15222
60883	Ametek Inc. Heat Transfer Division 2300 W. Marshall Drive Grand Prairie, TX 75051
61102	Purex Corp. Turco Products Division P.O. Box 6200 Carson, CA 90749
71286	Rexnard Inc. Specialty Fastener Div. 601 Rt. 46 West Hasbrouck Heights, NJ 07604

* Vendor code numbers correspond to those referenced in tools and equipment lists throughout the manual.

Source of Materials
Figure 1 (Sheet 1 of 2)

VENDOR CODE *	MANUFACTURER
73197	Hi-Shear Corp. 2600 Skypark Drive Torrance, CA 90509
76689	Monogram Industries, Inc. Sub. of Nortex Inc. 1299 Ocean Ave. Santa Monica, CA 90401
82748	Ruger Equipment Inc. P.O. Box 724 Uhrichsville, OH 44683
83324	Rosan Inc. 2901 West Coast Highway Newport Beach, CA 92663
83574	Products Research and Chemical Corp. 5430 San Fernando Road Glendale, CA 91203
94961	Minnesota Mining & Mfg. Co. 3M Center Building St. Paul, MN 55144
99384	M and T Chemicals, Inc. Furane Products Division 5121 San Fernando Rd. W. Los Angeles, CA 90039

VENDOR CODE *	MANUFACTURER

* Vendor code numbers correspond to those referenced in tools and equipment lists throughout the manual.

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CHAPTER 51

STANDARD PRACTICES-STRUCTURES

Learjet

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STRUCTURAL REPAIR MANUAL

AIRCRAFT - STRUCTURAL IDENTIFICATION

1. AIRCRAFT STRUCTURAL DESCRIPTION

WARNING: DRILLING, MODIFICATIONS, OR ANY TYPE OF WORK THAT CREATES A BREAK IN THE PRESSURE SECTION IS THE RESPONSIBILITY OF THE OWNER OR FACILITY PERFORMING THE WORK. OBTAINING APPROVAL OF THE WORK IS, THEREFORE, THEIR RESPONSIBILITY.

NOTE: The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. Major Structural Groups
   (1) The major structural groups of the aircraft are the doors, fuselage, nacelles/pylons, stabilizers, windows, and wings.

B. Major Structural Members
   (1) The major structural members of the aircraft are the forward and aft pressure bulkheads, floorboards, forward and aft engine beams, baggage compartment floor, under wing keelbeam, fuselage keelbeam, and the landing gear.

C. Type of Construction
   (1) This is an all-metal aircraft with full cantilever wing and horizontal stabilizer. The fuselage is of semimonocoque construction and supports an engine nacelle on each side in the area above and aft of the wing.
   (2) A two-piece passenger/crew door (upper and lower) is located on the fuselage left side. The doors are hinged to the fuselage by piano-type hinges. The lower door incorporates the steps for entering and exiting the aircraft. Additionally, there is an emergency exit, several service doors, and the landing gear doors.
   (3) The fuselage basic structure consists of a stressed skin structure with transverse frames and longerons. The fuselage is comprised of four basic sections: the nose section, the pressurized section (cockpit and cabin), the fuel section, and the tailcone section.
   (4) The pressurized section houses the crew, passenger, and baggage areas. Drilling, modifications, or any type of work that creates a break in the pressure section is the responsibility of the owner or facility performing the work. Obtaining approval of the work is, therefore, their responsibility.
   (5) The principle structure of the engine nacelles consists of the nose section, upper and lower cowls and the aft section. The complete nacelle assembly is cantilevered from the pylon by engine support fittings, and structural carry-through fittings that extend inboard from the nacelle, through the pylon, and attach to the fuselage assembly.
   (6) The horizontal stabilizer is a fully cantilevered one-piece construction consisting of a forward and aft spar, transverse ribs, stringers, and skins.
   (7) The vertical stabilizer is a fully cantilevered structure consisting of spars, transverse ribs, and skins.
   (8) The elevator and rudder consist of a forward spar and transverse ribs and skins.

(9) The flight compartment windows consist of the pilot's and copilot's windshield halves. On *Model 23 Series Aircraft* each windshield half is made up of separate, removable, inner and outer panes. On *Model 24/25/28/29 Series Aircraft* each windshield half is made up of three laminated layers of acrylic plastic. Both outer layers are made of stretched acrylic and the middle layer is cast in place acrylic. On *Aircraft 31-001 thru 31-029, 35-001 thru 35-670 and 36-001 thru 36-063 equipped with a standard, non-heated windshield*, the windshield is made up of three laminated layers of acrylic plastic. Both outer layers are made of stretched acrylic and the middle layer is cast in place acrylic. On *Aircraft 31-030 and Subsequent, 35-671 and Subsequent, and 36-064 and Subsequent and prior aircraft equipped with an electrically heated windshield*, the windshield is made up of four laminated layers. Two layers of polycarbonate are sandwiched between two outer layers of acrylic. A spacer is bonded to the interior side of the windshield. The windshield has an integral electric heater and heat sensors. The electric heating element consists of a thin layer of gold laminated into the windshield. Because of the gold layer, the windshield has a yellow or gold color cast. The function of the heater is to provide windshield defogging. Terminal blocks are embedded in the windshield and provide the means for wiring the electric heater to the aircraft wiring. The windshield is secured to the fuselage with screws and retainers.

(10) The cabin windows consist of two panes of stretched acrylic with dead air space between them. The cabin windows are secured to the fuselage structure. The right rear window is removable and serves as the emergency exit.

(11) The wing is a fully-cantilevered single-unit consisting of the leading edge, wing box section, ailerons, flaps, spoilers, and tip tanks or winglets. The multicellular-type wing structure consists of spars and ribs in each wing half. The upper and lower wing skins are taper-milled so the trailing edge is thinner than the leading edge. Splice plates join the wing skin halves at the aircraft centerline. The winglets are built in two sections. The inboard section is conventional built-up construction and the outboard section is a bonded assembly consisting of aluminum skins and a full-depth aluminum honeycomb core. The flaps, ailerons, and spoilers are constructed primarily of spars, transverse ribs, and skins.

2. STRUCTURAL DESIGN CONCEPT

A. Basic Design Approach

(1) There are two basic design approaches for ensuring the structural integrity of an aircraft during its service life: the "safe-life" and "fail-safe" concepts. The design of the Learjet incorporates both concepts. To clarify the differences in the two basic approaches, definitions are presented in the following paragraphs.

B. Safe-Life Concept

(1) A safe-life aircraft structure is defined as being capable of withstanding, without failure, the repeated loads of variable magnitudes expected during the defined service life of the aircraft. Safe-life is proved by either analysis or tests that include all scatter factors on material and load spectrums. Because of the proof of safe-life, alternate load paths are not necessarily deliberately provided.

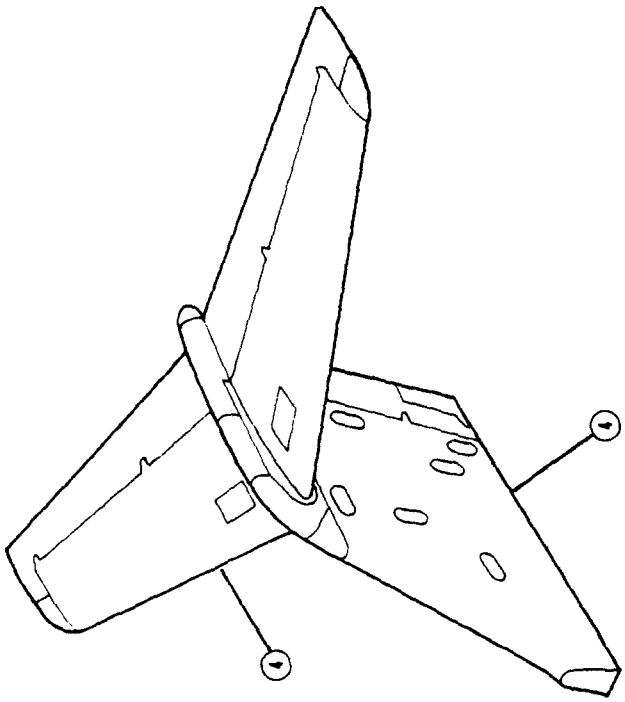
C. Fail-Safe Concept

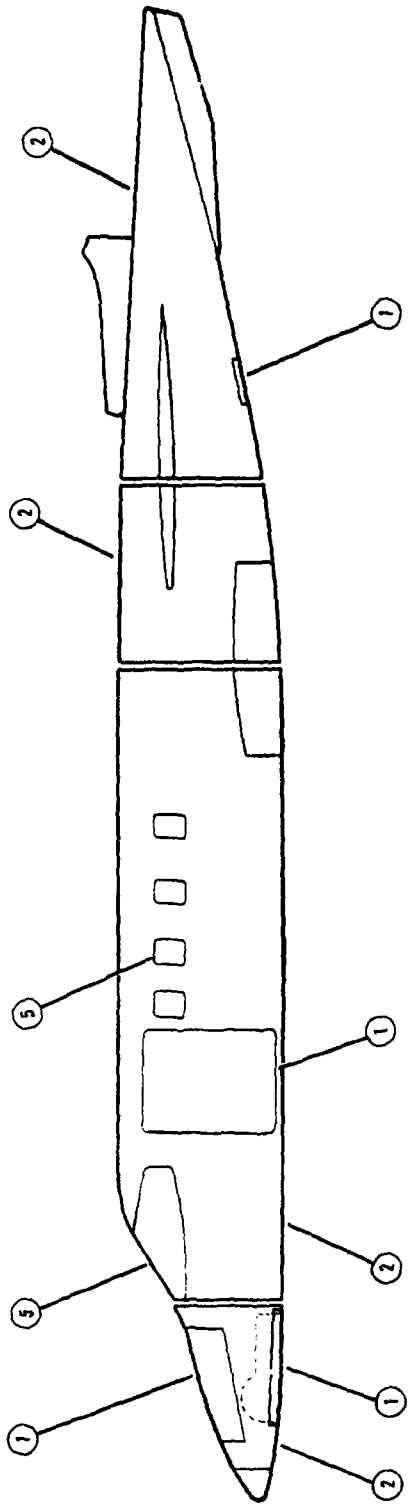
(1) The concept of fail-safe design differs in that alternate load paths are specifically provided and methods for limiting crack propagation are employed.

3. REPAIRING SAFE - LIFE STRUCTURE
   A. Safe-Life Structure Repair
      (1) Since safe-life structure does not provide for alternate load paths or methods of limiting crack propagation, it is mandatory that all damage to primary and secondary structure (other than allowable damage) be repaired upon discovery.
      (2) Repairs in this manual are designed to restore the capability of the material in order to ensure the safe-life characteristics of the structure. It is emphasized that other repairs, designed for a specific "fix," must follow the same concept, i.e., that the ultimate allowable strength must be maintained, to maintain structural integrity for the life of the aircraft.

4. STRUCTURE LOADING
   A. Structural Loading
      (1) Caps and flanges of spars, ribs, frames and beams are considered to be in tension or compression.
      (2) Skin panels, together with spar, rib, frame and beam webs, are assumed to be in shear. Additionally, skins may carry tension or compression loads. In the case of compression, loads are assumed to be carried only by a small width of skin along the line of fasteners attaching skin to substructure.
      (3) Stringers may be in tension or compression.

5. PRIMARY AND SECONDARY STRUCTURE
   A. Primary structure is considered to be that structure that is essential to continued safe flight and landing. Examples of this would be wing (spars, skins, ribs, fittings, etc.), fuselage, empennage, control structure systems/support and mechanisms, engine mounts and pylon structure, landing gear and actuator including attachment fittings, main cabin door and attachments, windshield, cabin windows, escape hatch, and underwing keel beam.
   B. Secondary structure is that not considered essential for continued safe flight and landing. Examples of this would include fairings (wing-to-body etc.), gear doors, nose access doors, dorsal fin, upper vertical fin mailbox fairing, tailcone access door, horizontal-to-vertical tail fairing, parts of pylon fairing and nacelle covers.



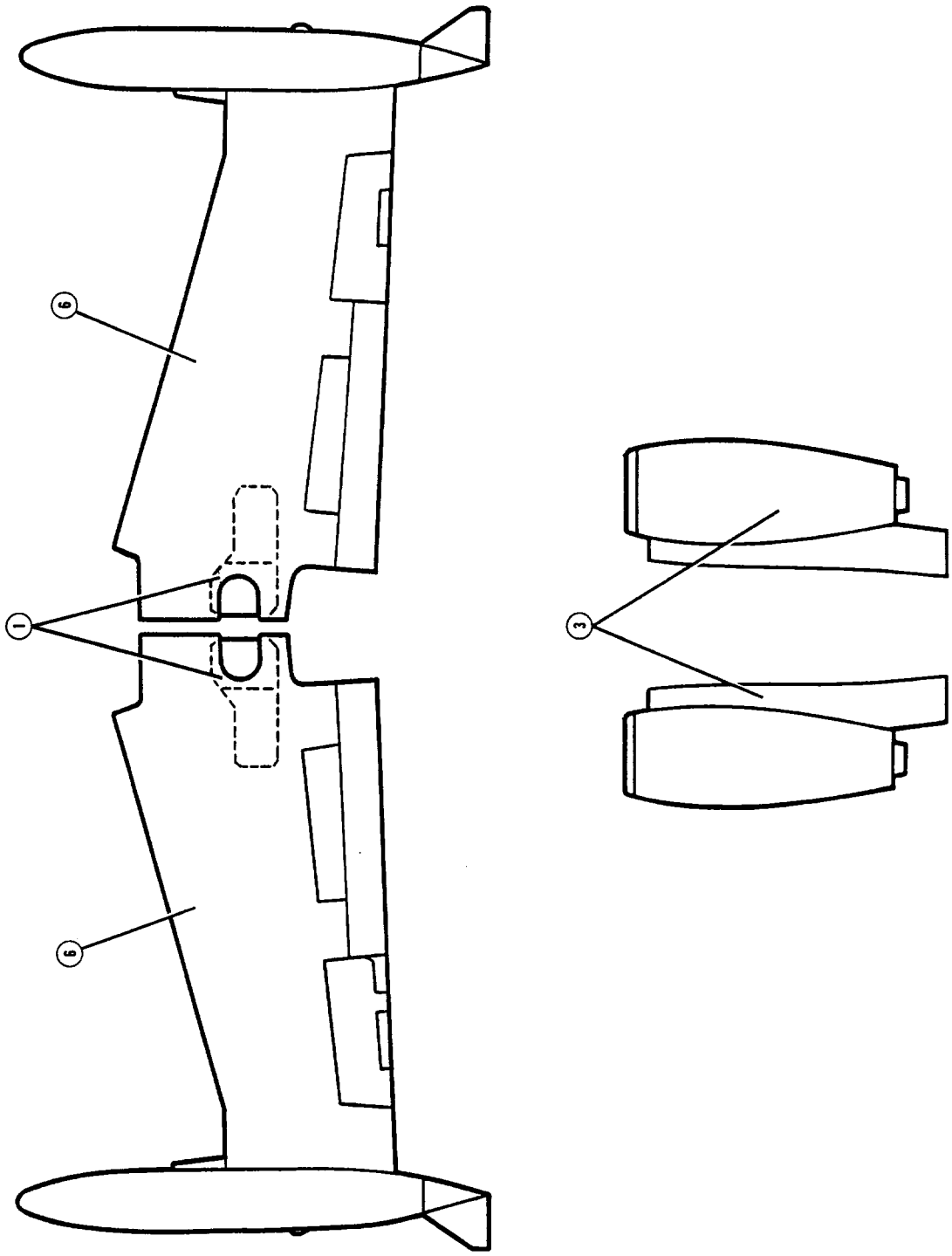


Item No.	Section Title	Chapter
1	Doors	52
2	Fuselage	53
3	Nacelles/Pylons	54
4	Stabilizers	55
5	Windows	56
6	Wings	57

(TYPICAL)

14-192B
14-193A

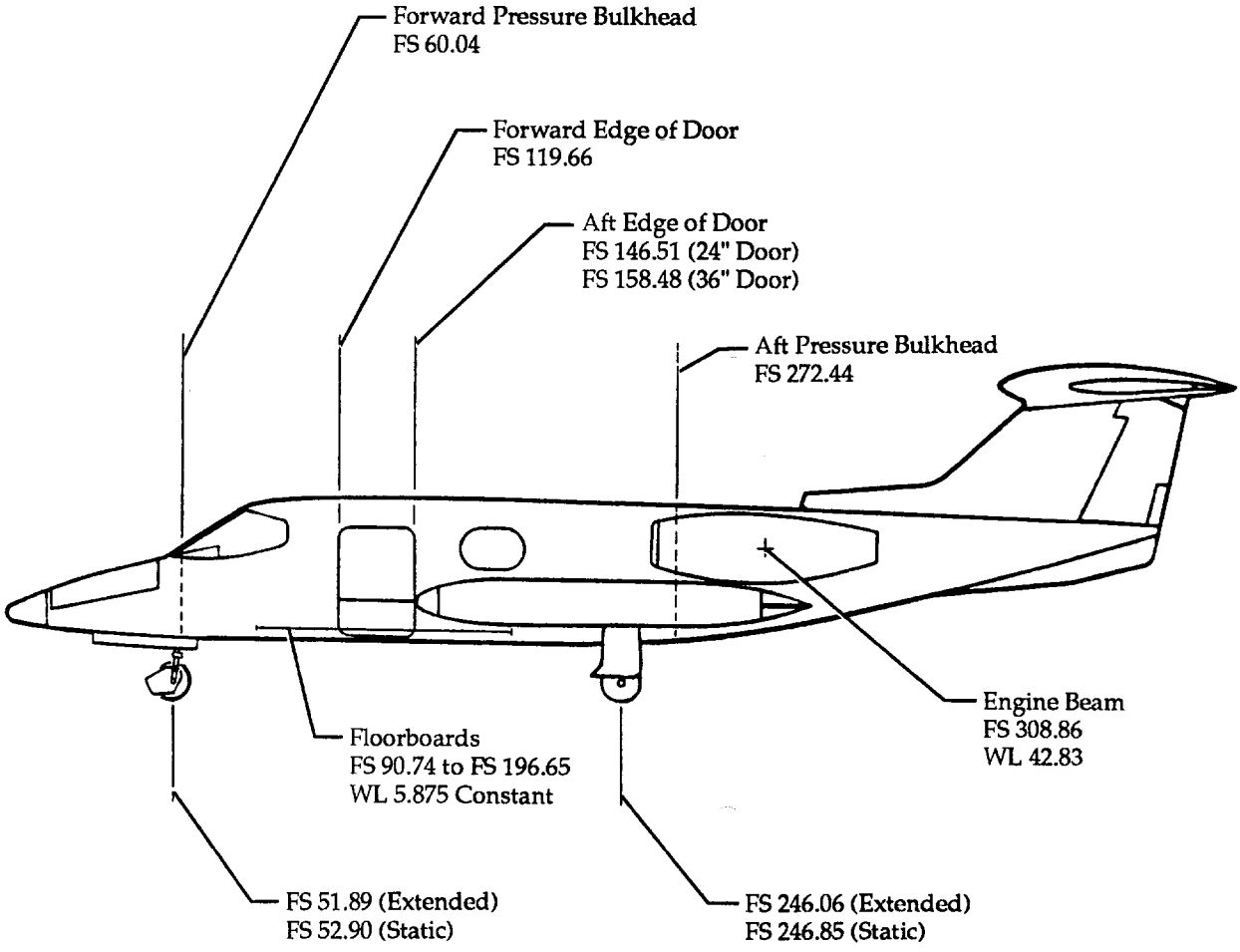
Aircraft Master Repair Index
Figure 1 (Sheet 1 of 2)



(TYPICAL)

14-214B (MOD)

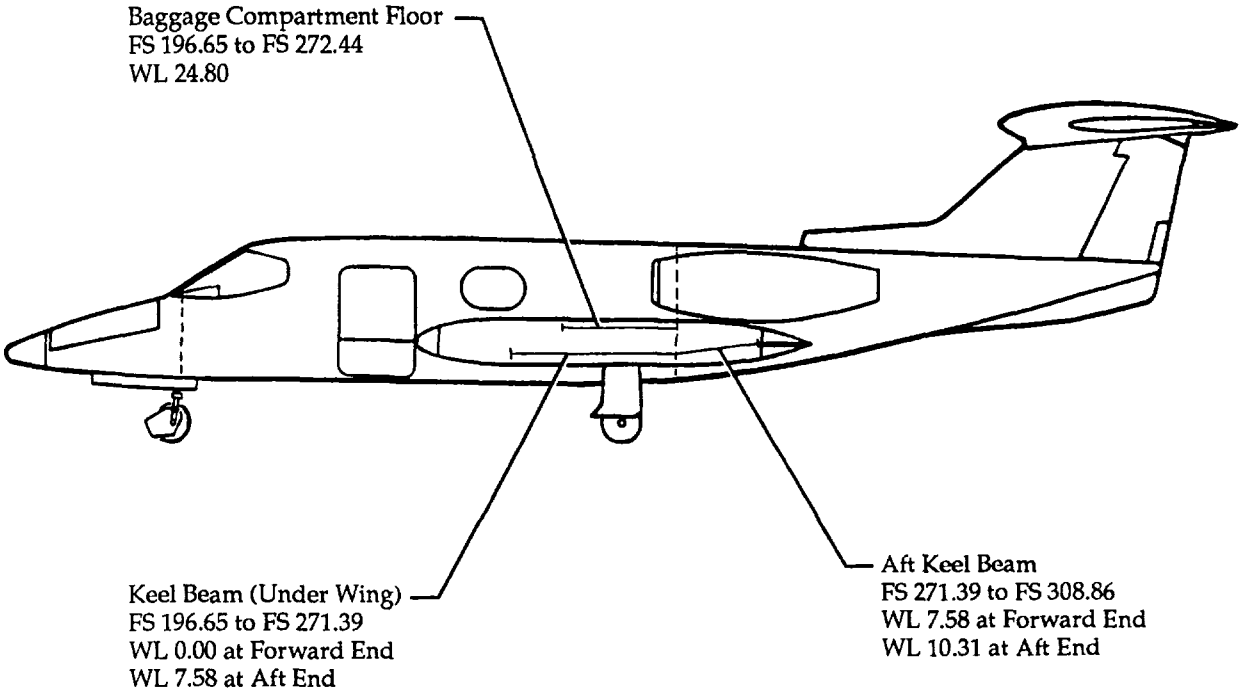
Aircraft Master Repair Index
Figure 1 (Sheet 2 of 2)



(TYPICAL)

14-66C (MOD)

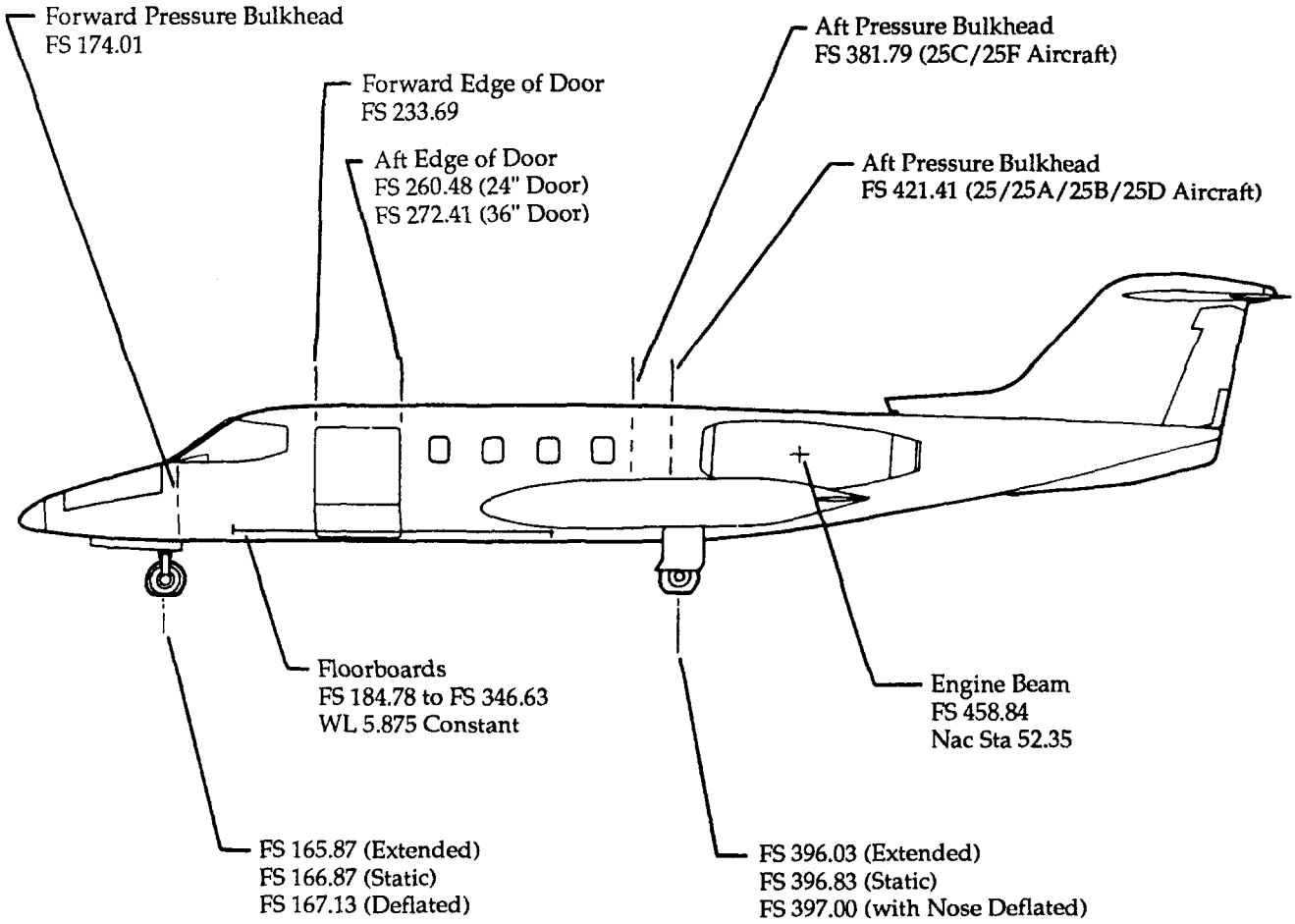
Major Structural Member Locations
Figure 2 (Sheet 1 of 2)



(TYPICAL)

14-214B (MOD)

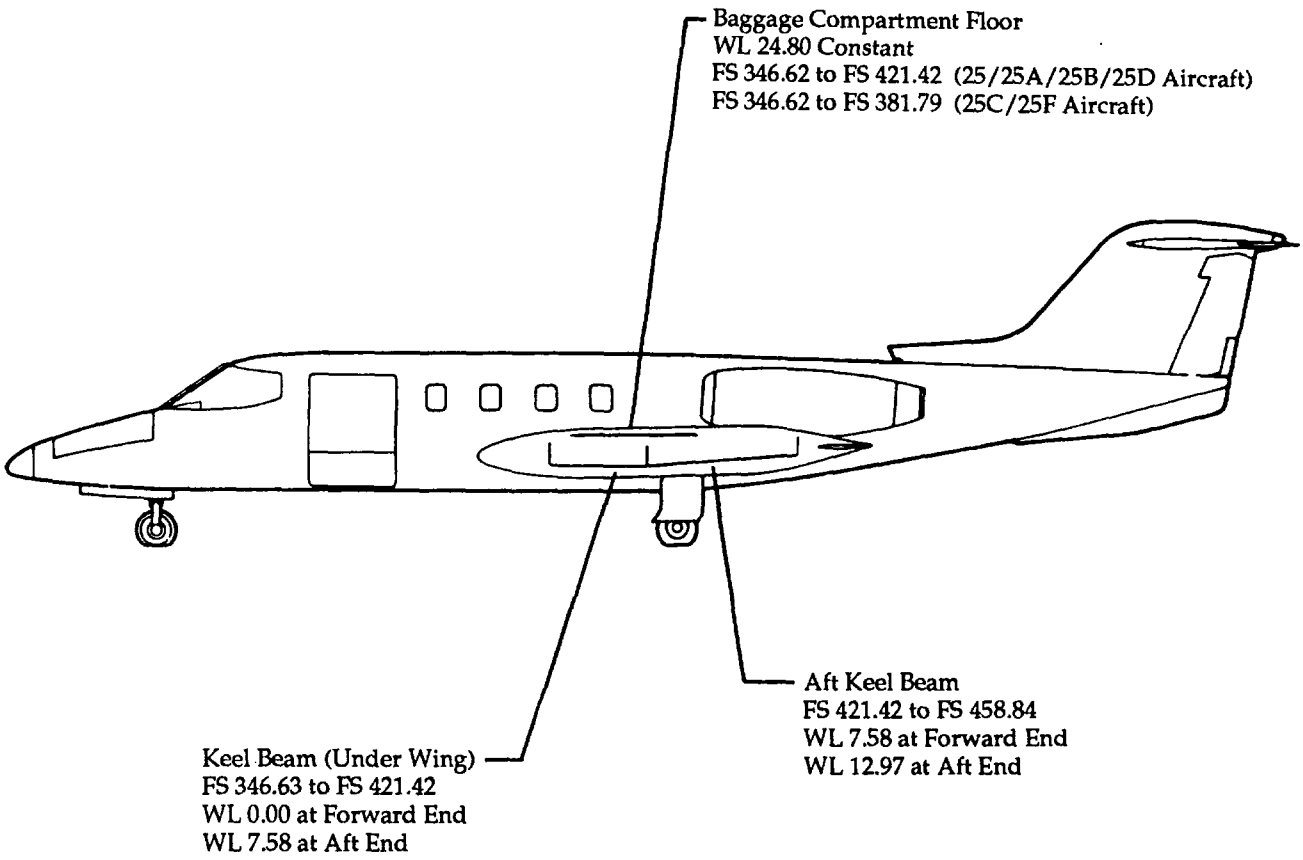
Major Structural Member Locations
Figure 2 (Sheet 2 of 2)



(TYPICAL)

Repro

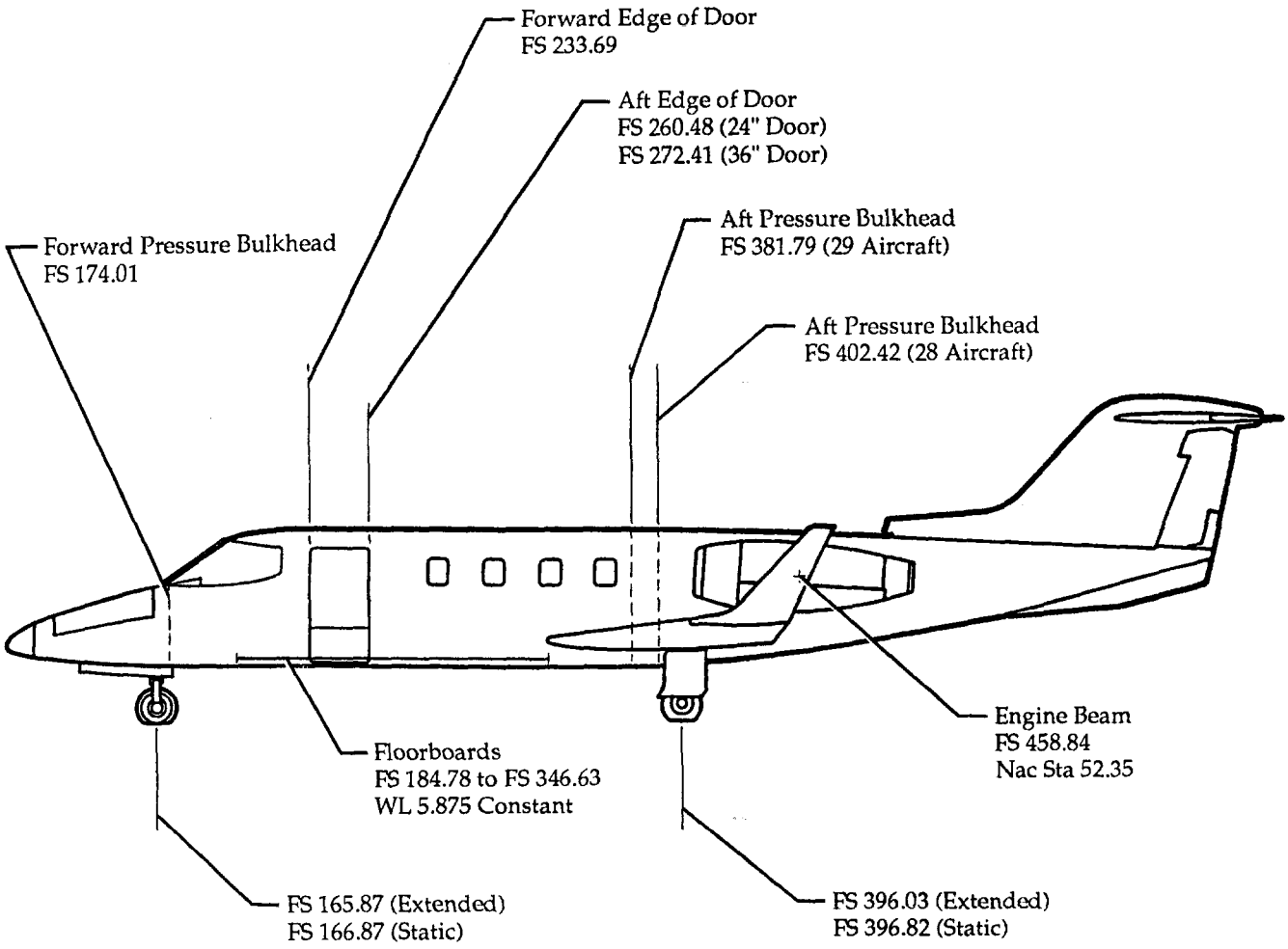
Major Structural Member Locations
Figure 3 (Sheet 1 of 2)



(TYPICAL)

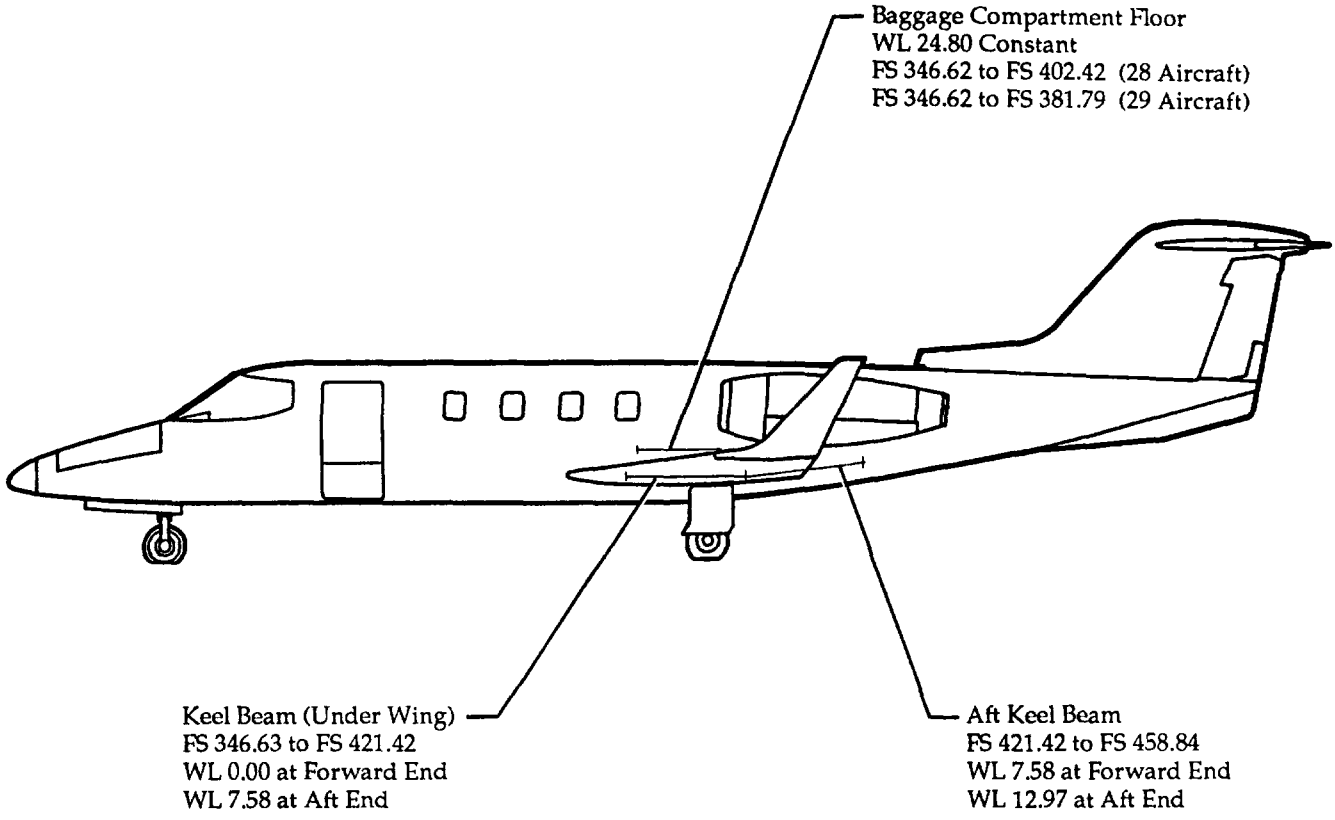
Repro

Major Structural Member Locations
Figure 3 (Sheet 2 of 2)



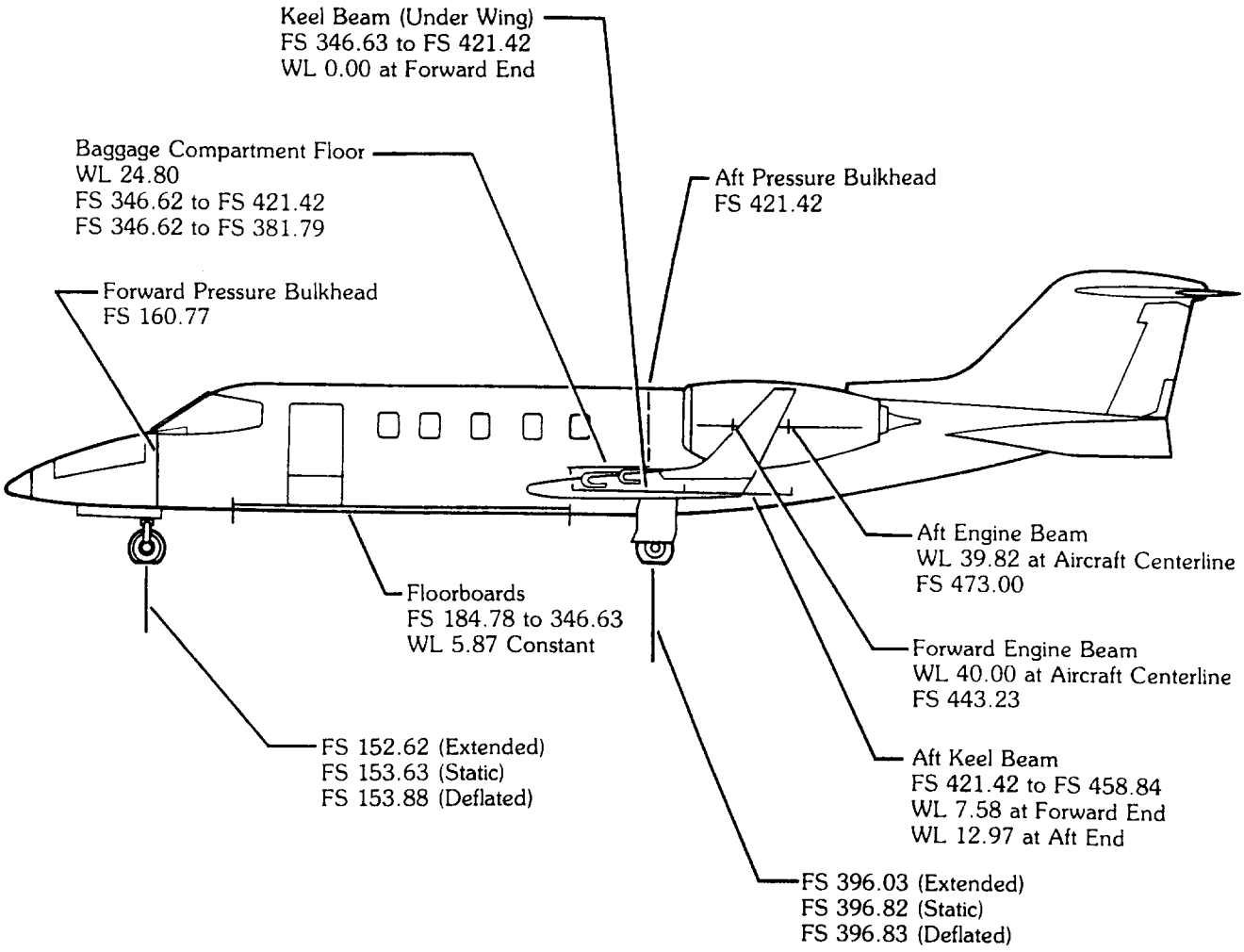
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Major Structural Member Locations
Figure 4 (Sheet 1 of 2)



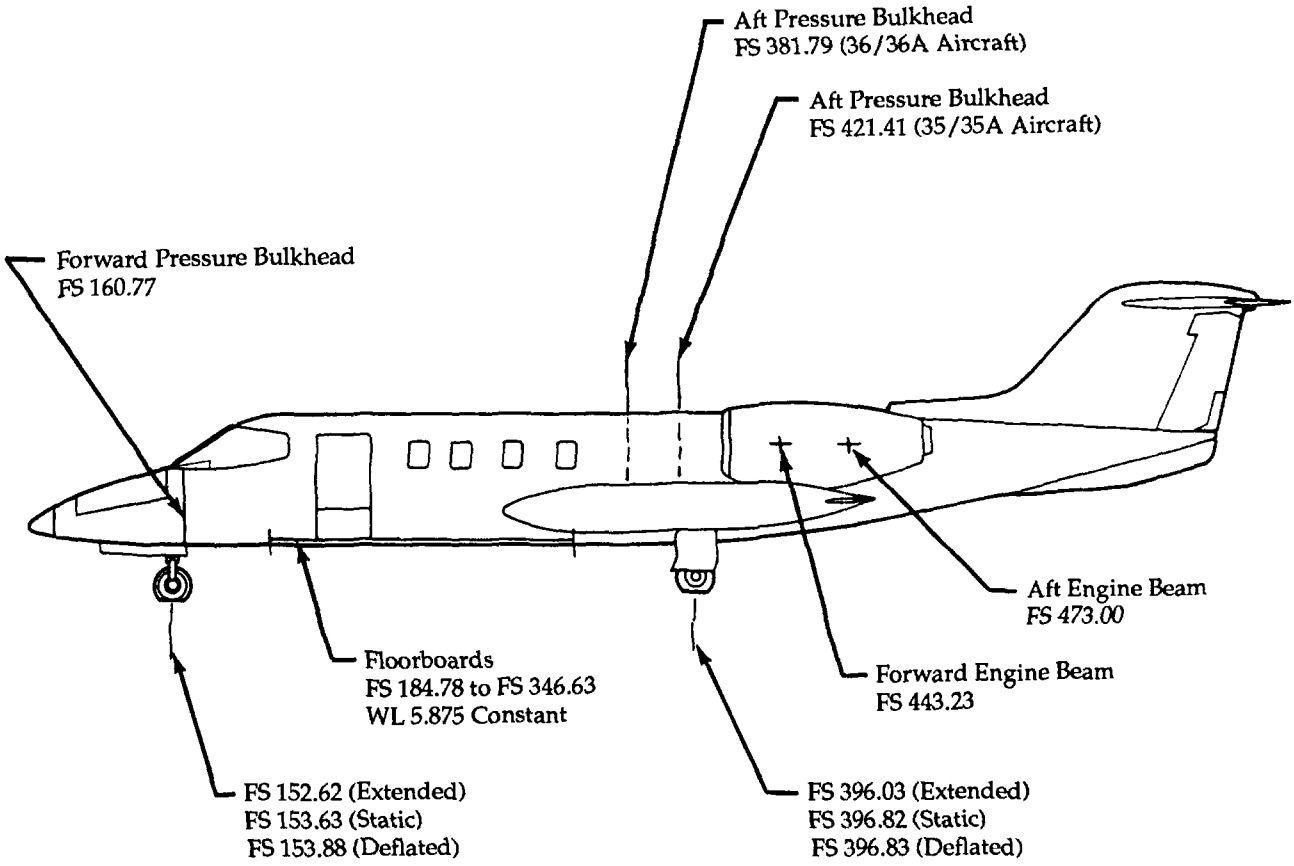
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Major Structural Member Locations
Figure 4 (Sheet 2 of 2)



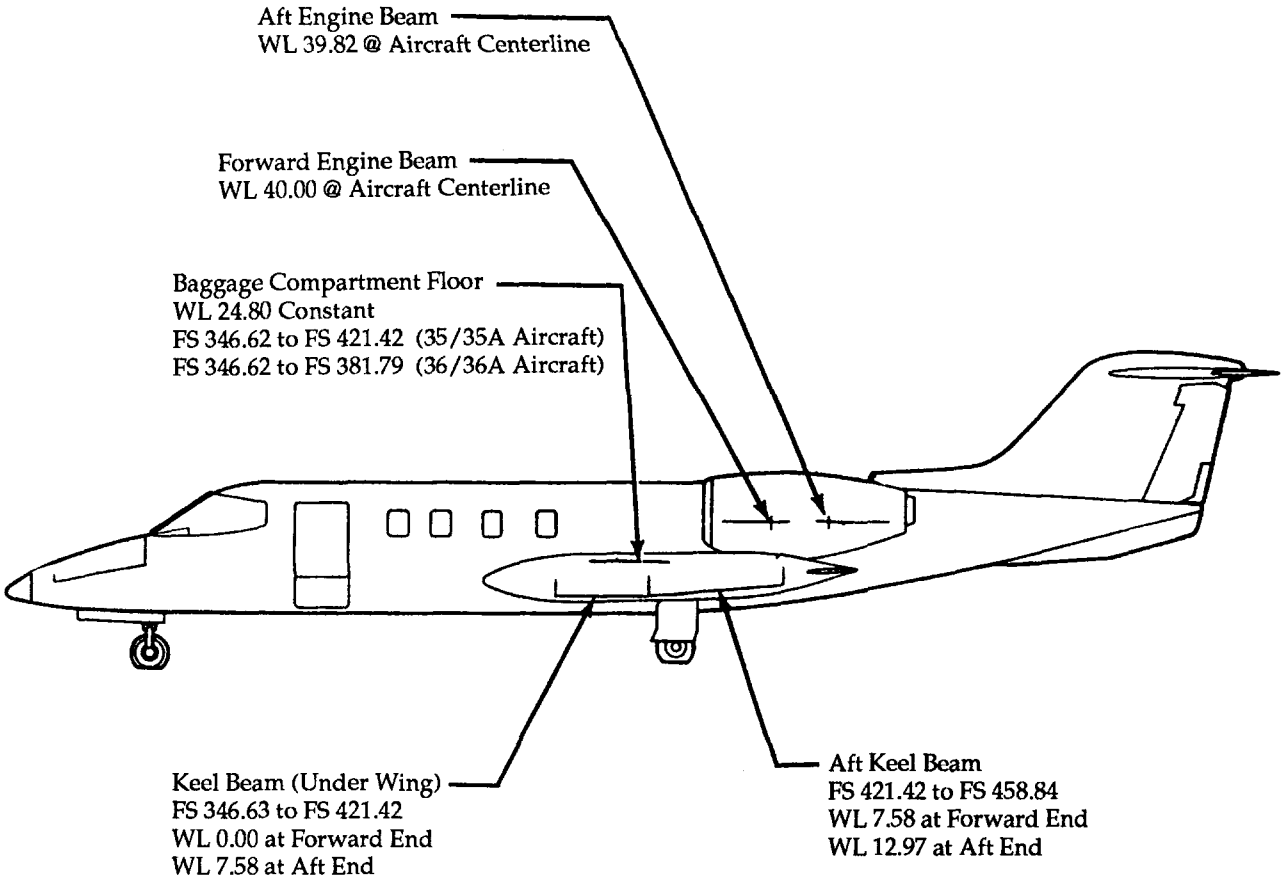
Repro

Major Structural Member Locations
Figure 5



Repro

Major Structural Member Locations
Figure 6 (Sheet 1 of 2)



Repro

Major Structural Member Locations
Figure 6 (Sheet 2 of 2)

1. AIRCRAFT MEASUREMENT SYSTEM DESCRIPTION

A. This section presents the aircraft dimensions, control surface areas, water lines, buttock lines, and station designations.

B. The dimensions of the aircraft and the areas of the control surfaces are carried to the nearest full inch. These dimensions are for reference only and are not for inspection purposes.

C. The aircraft is divided into reference points along three axes and are measured in inches. These reference points provide a means of quickly identifying the location of a bulkhead, component, etc.

(1) Fuselage station (FS), water line (WL), and buttock line (BL) measurements used in this manual are rounded to the nearest inch.

D. All reference points may be converted to metric measurement (millimeters) by multiplying the reference point (in inches) by 25.4.

E. The following terms are used for reference points.

FS – Fuselage station is a vertical reference plane measured horizontally from a vertical reference line on or near the nose of the aircraft.

WL – Water line is a horizontal reference plane measured vertically from the horizontal reference line of the aircraft.

BL – Buttock line is a vertical reference plane measured horizontally from the aircraft centerline. Right or left is added to indicate the direction from aircraft centerline (RBL & LBL).

WS – Wing station is a vertical reference plane measured horizontally from the wing centerline and perpendicularly along wing datum.

CL – Centerline is the center reference point of the aircraft or component.

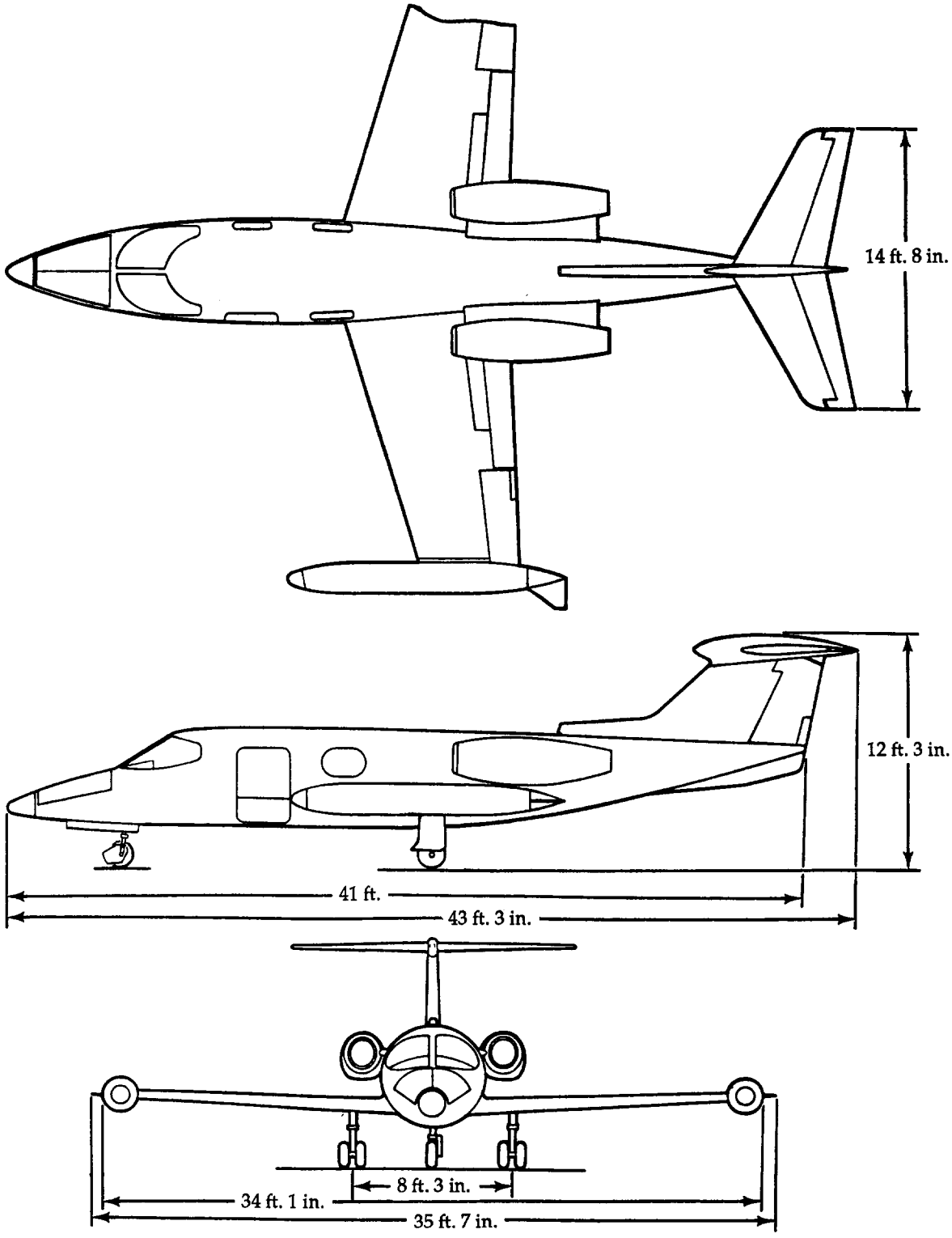
NAC STA – Reference points that apply to the engine nacelle.
NAC WL
NAC BL

TIP TANK STA – Reference points that apply to the tip tank.
TT WL
TT BL

WINGLET STA – Reference points that apply to the winglet.

OML – Outside Mold Line is that line corresponding to the outside contour of a fuselage skin or formed part.

IML – Inside Mold Line is that line corresponding to the inside contour of a fuselage skin or formed part.



Repro

Aircraft Measurement System – Dimensions
Figure 1 (Sheet 1 of 13)

Subject	Dimensions
Aircraft	
Span (overall)	35 ft. 7 in.
Span (excluding tip tank fins)	34 ft. 1 in.
Length (overall)	43 ft. 3 in.
Height (overall)	12 ft. 3 in.
Wing	
Root Chord (@ fuselage centerline)	9 ft. 0 in.
Chord (@ WS 181)	5 ft. 1 in.
Dihedral	2° 30'
Sweepback (c/4)	13°
Incidence	+1°
Aileron	
Span (nominal)	4 ft. 8 in.
Root Chord	1 ft. 5 in.
Tip Chord	1 ft. 1 in.
Trim Tab Span (LH only)	1 ft. 3 in.
Balance Tab Span (RH & LH)	1 ft. 9 in.
Flaps	
Type	Single Slotted
Span (nominal)	9 ft. 2 in.
Root Chord	2 ft. 4 in.
Tip Chord	1 ft. 8 in.
Horizontal Stabilizer	
Span	14 ft. 8 in.
Root Chord	5 ft. 0 in.
Tip Chord	2 ft. 4 in.
Sweepback (c/4 chord)	25°
Dihedral	0°
Elevators	
Span (per side)	7 ft. 4 in.
Root Chord	1 ft. 4 in.
Tip Chord	7 in.

Aircraft Measurement System – Dimensions
Figure 1 (Sheet 2 of 13)

Vertical Stabilizer

Span	5 ft. 6 in.
Root Chord	8 ft. 11 in.
Tip Chord	5 ft. 1 in.
Sweepback (@ leading edge)	35° 36'

Fuselage

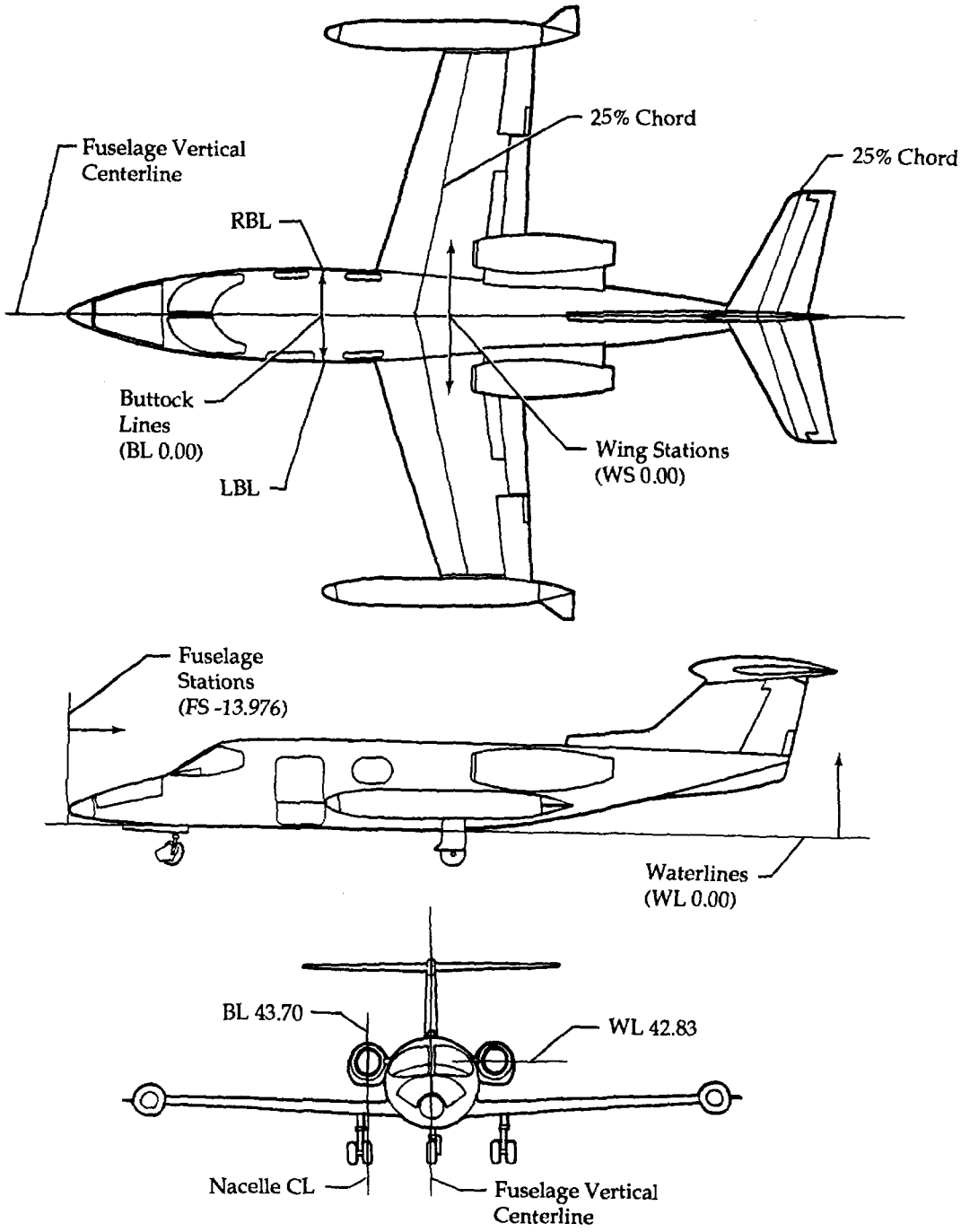
Fuselage Constant Section

Outside diameter	5 ft. 3 in.
Inside diameter	4 ft. 9 in.
Length of passenger area	8 ft. 8 in.
Height (floor to ceiling)	4 ft. 4 in.

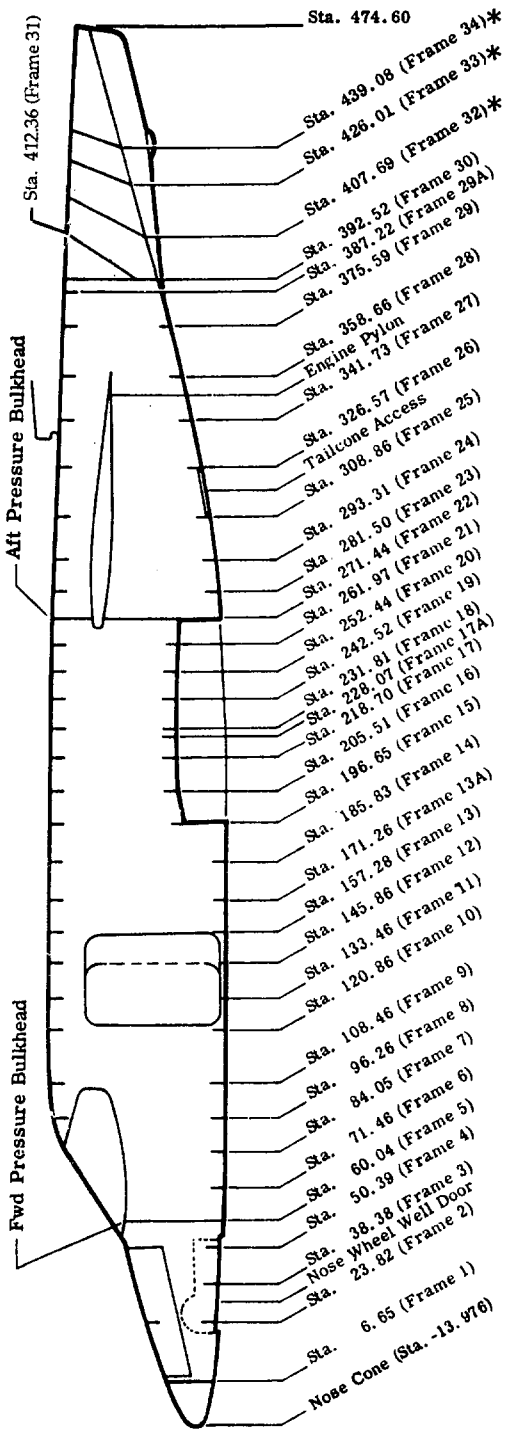
Miscellaneous Areas

Wing (WS 0.0 to WS 181.10)	231.90 $ft.^2$
Aileron (per side, aft of hinge line)	5.854 $ft.^2$
Aileron Trim Tab (LH only)	0.335 $ft.^2$
Aileron Balance Tab (LH & RH)	1.25 $ft.^2$
Flaps (total)	36.85 $ft.^2$
Spoilers (total)	7.0 $ft.^2$
Horizontal Stabilizer (total)	54.0 $ft.^2$
Stabilizer (excluding elevator)	38.06 $ft.^2$
Elevator	15.94 $ft.^2$
Vertical Stabilizer (total)	37.48 $ft.^2$
Vertical Stabilizer (excluding rudder)	30.63 $ft.^2$
Rudder	6.85 $ft.^2$
Rudder Trim Tab	0.69 $ft.^2$

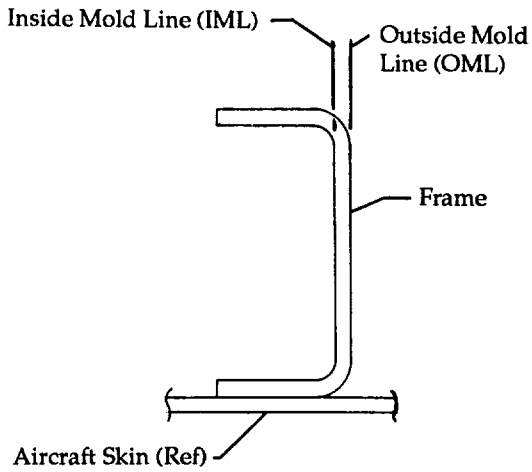
Aircraft Measurement System – Dimensions
Figure 1 (Sheet 3 of 13)



Aircraft Measurement System – Reference Points
Figure 1 (Sheet 4 of 13)

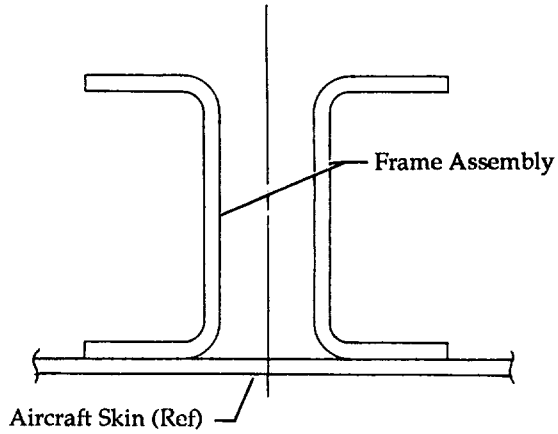


* Measured at OML of Bulkhead Intersection with Bottom ℄ of fuselage skin.



(TYPICAL)

(SINGLE FRAME MEMBER CROSS SECTION)

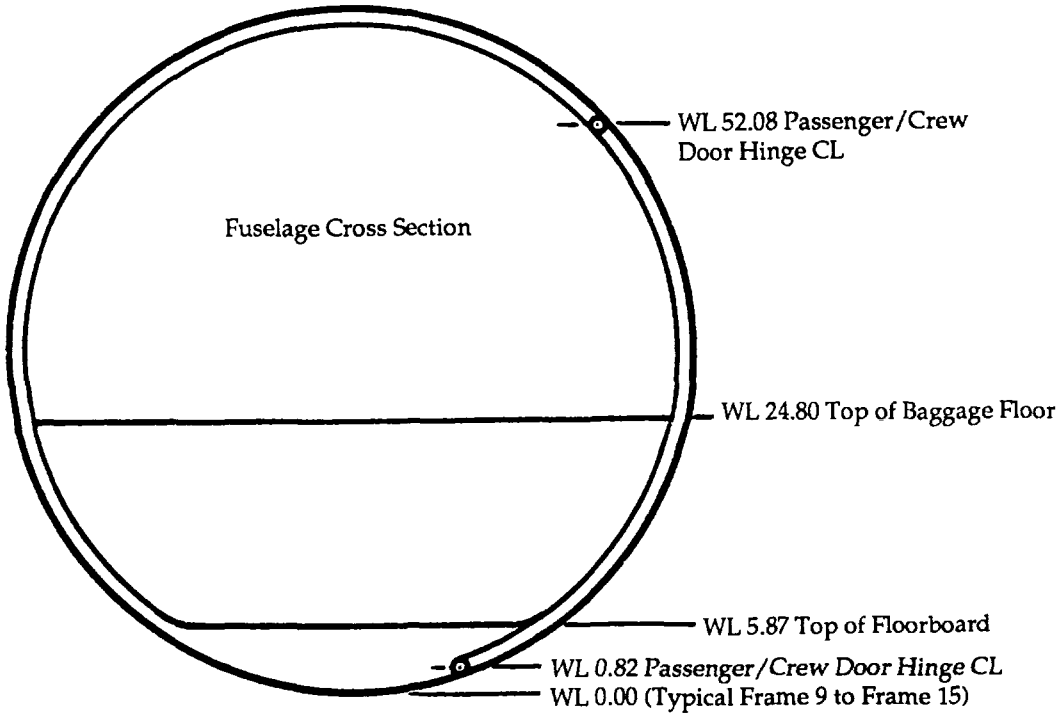


(TYPICAL)

(DOUBLE FRAME MEMBER CROSS SECTION)

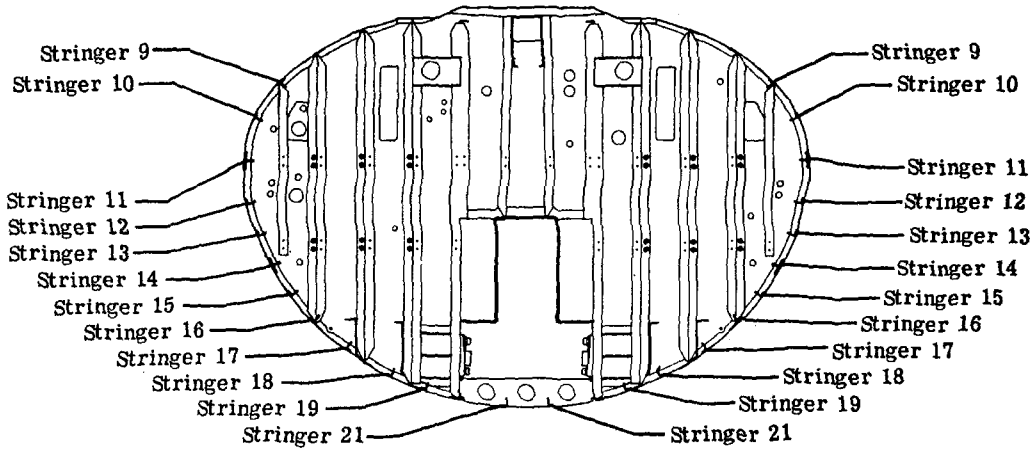
14-77B

Aircraft Measurement System – Fuselage Stations
Figure 1 (Sheet 5 of 13)

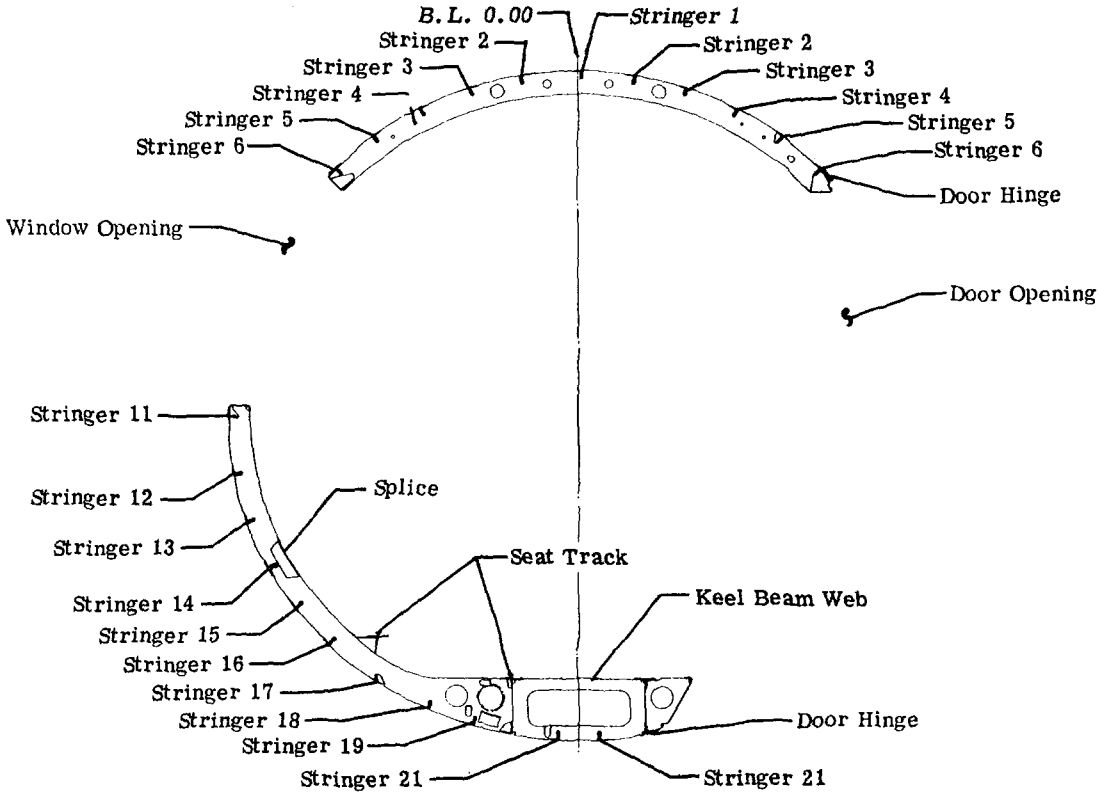


14-131B

Aircraft Measurement System – Fuselage Stations
Figure 1 (Sheet 6 of 13)

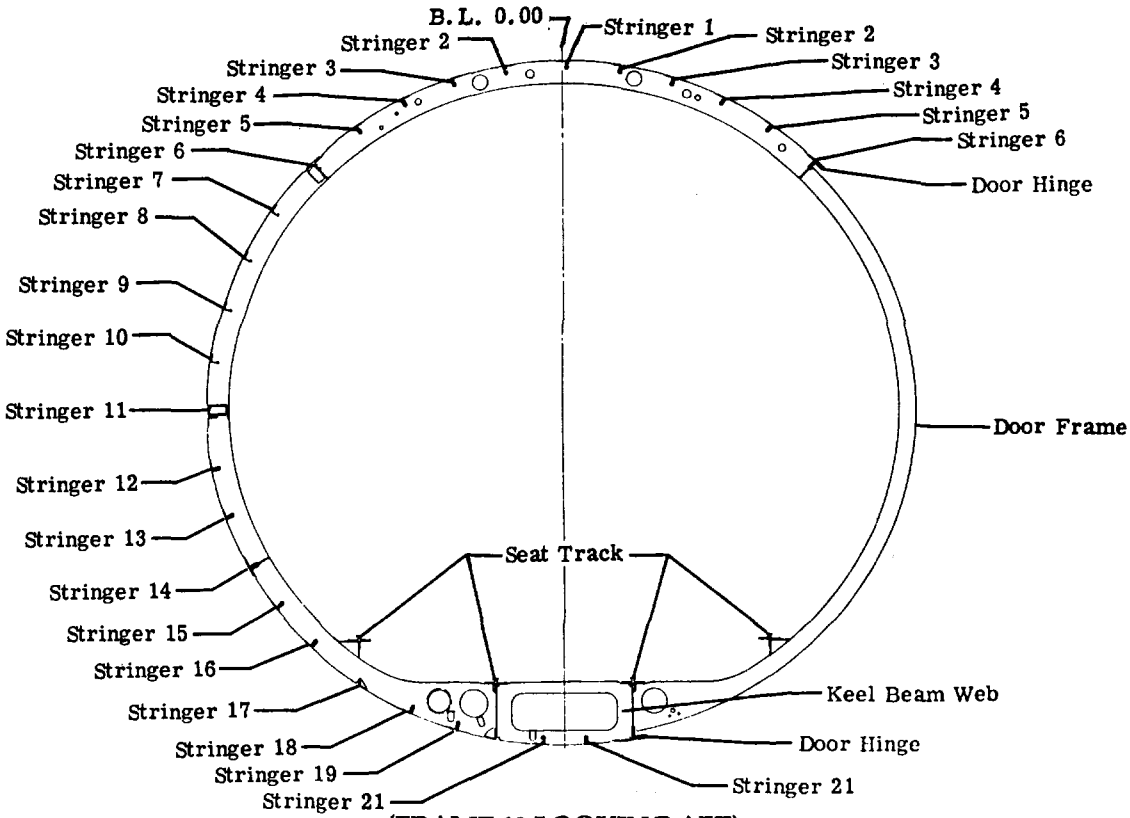


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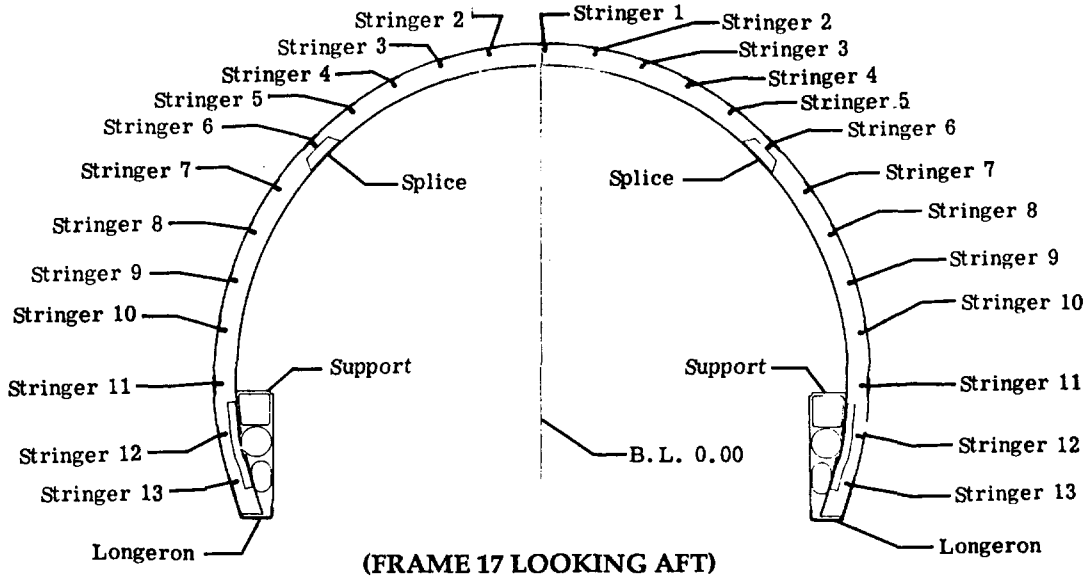


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Aircraft Measurement System – Fuselage Stations
Figure 1 (Sheet 7 of 13)

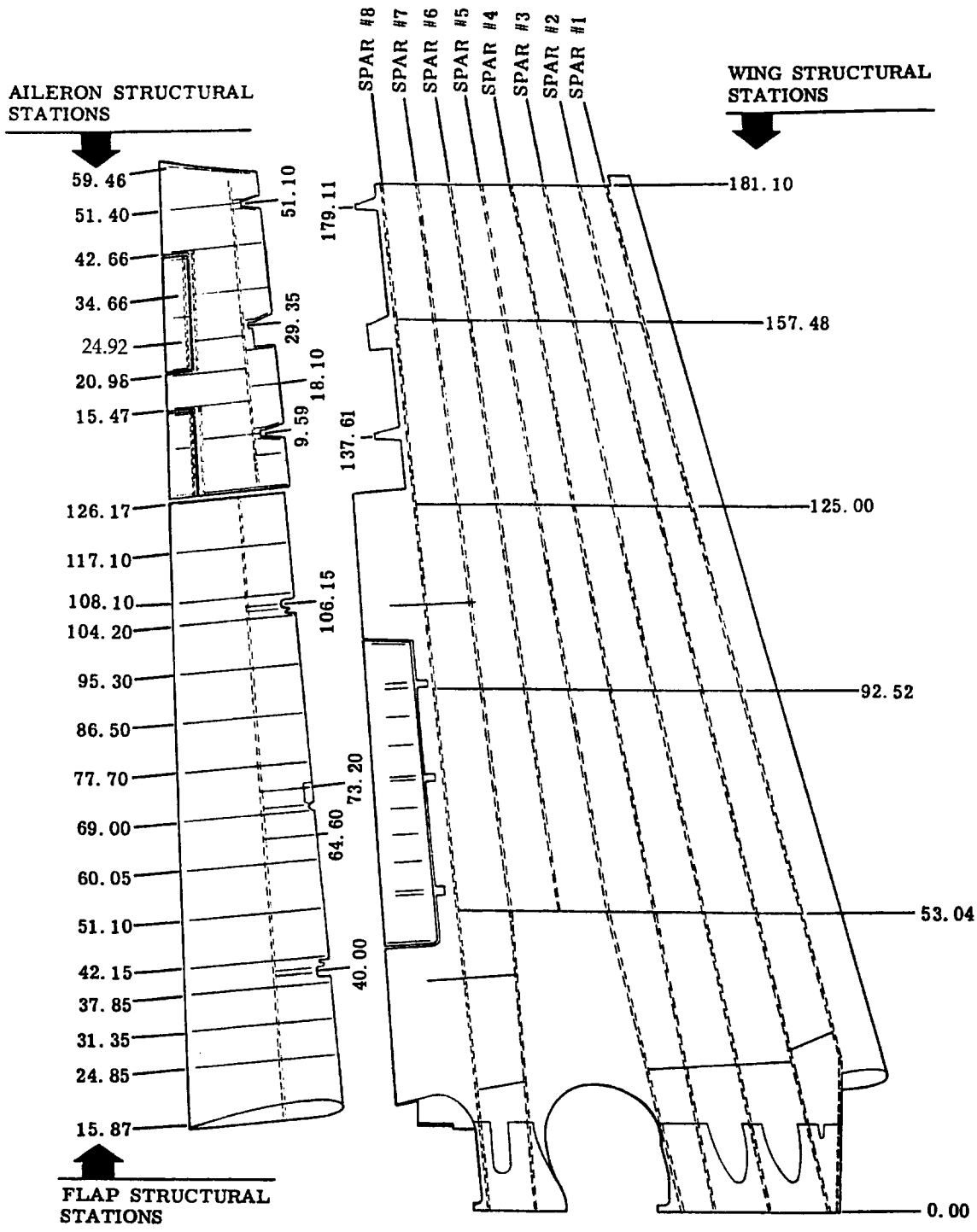


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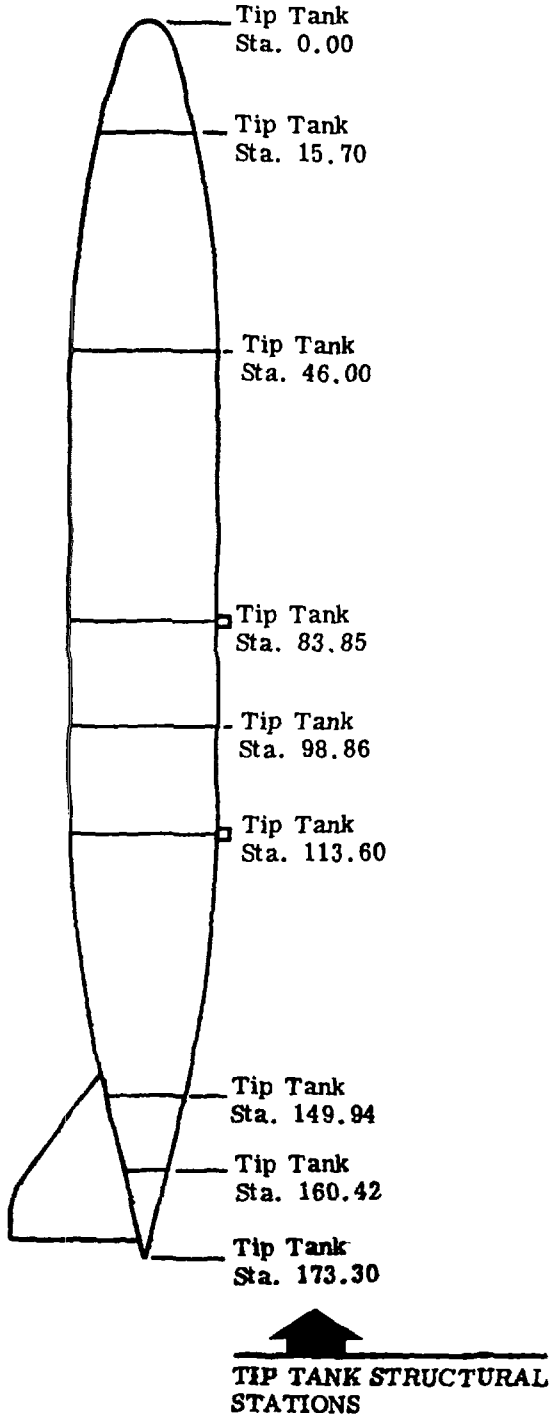


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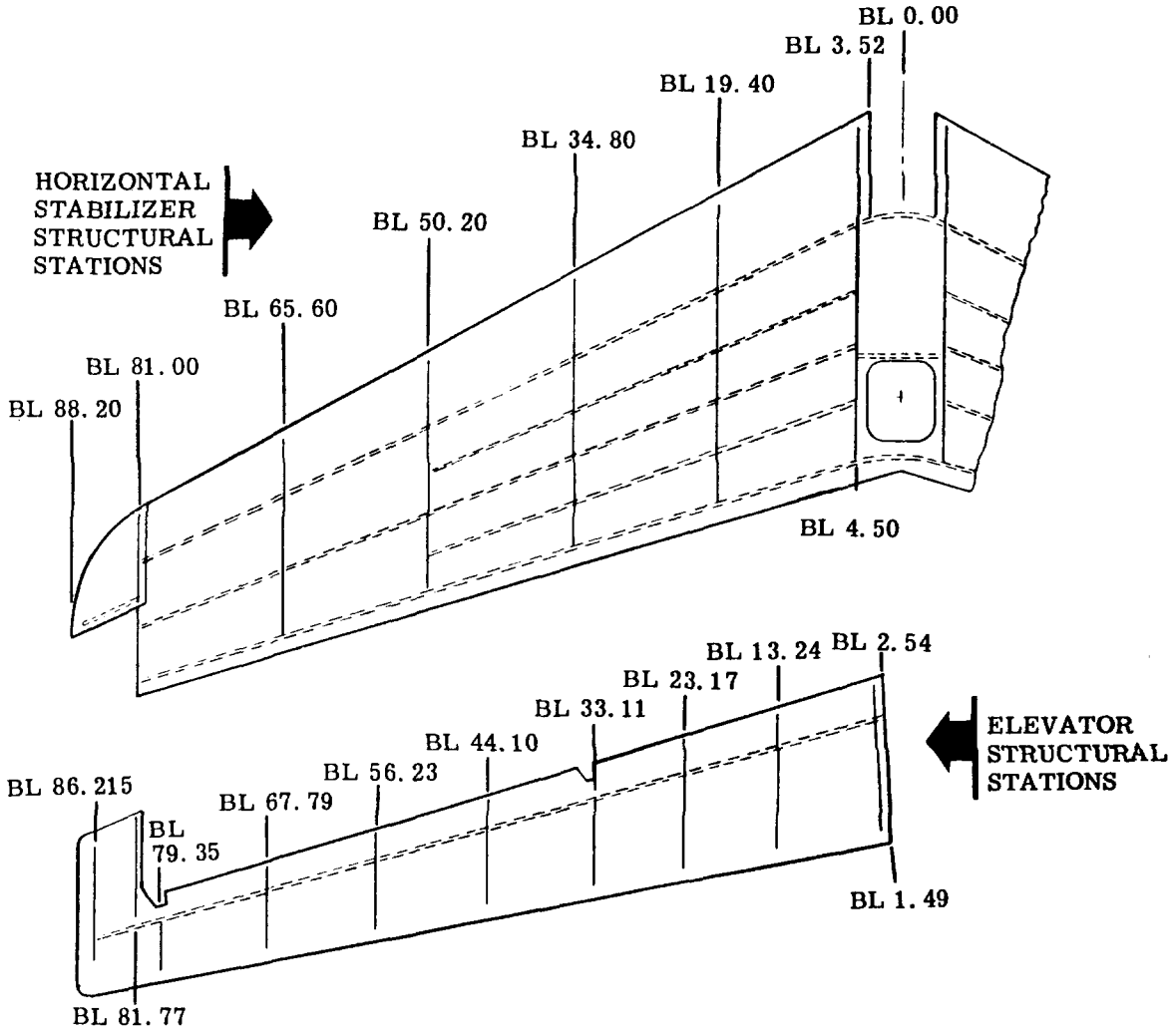
Aircraft Measurement System – Fuselage Stations
Figure 1 (Sheet 8 of 13)



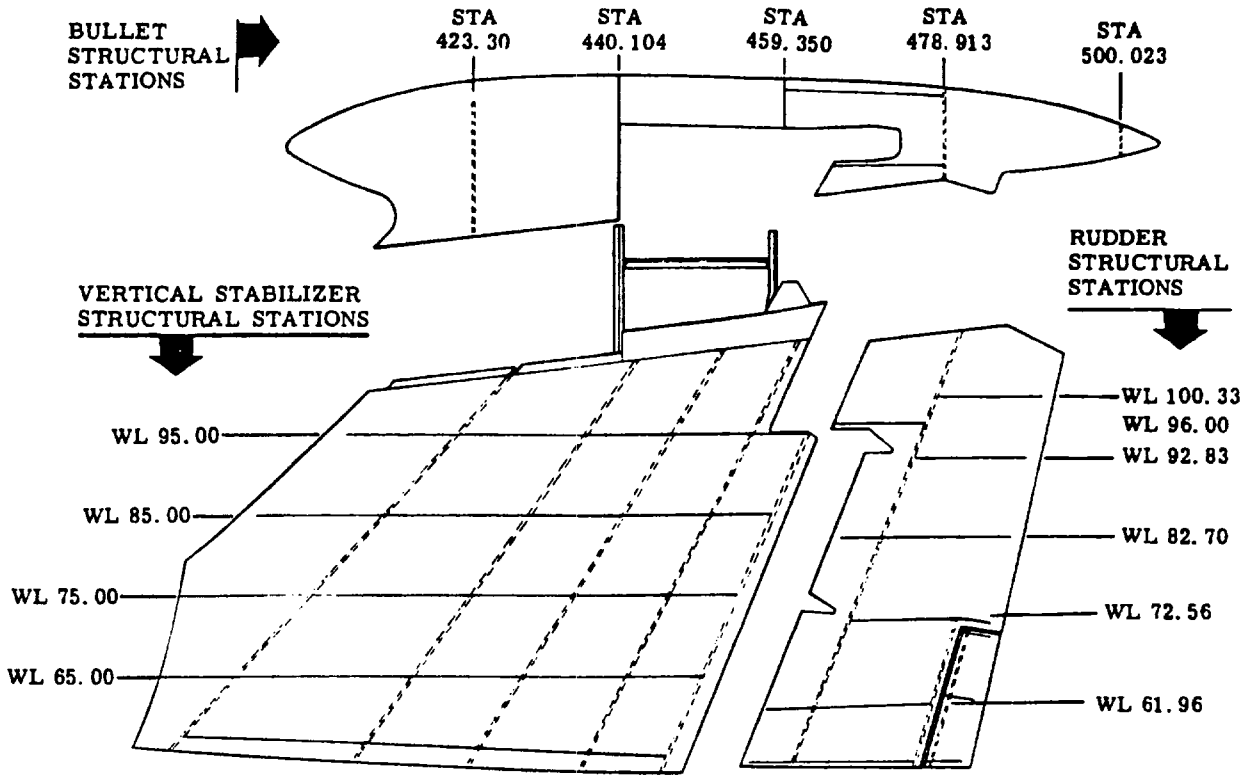
Aircraft Measurement System – Wing, Aileron and Flap Stations
Figure 1 (Sheet 9 of 13)



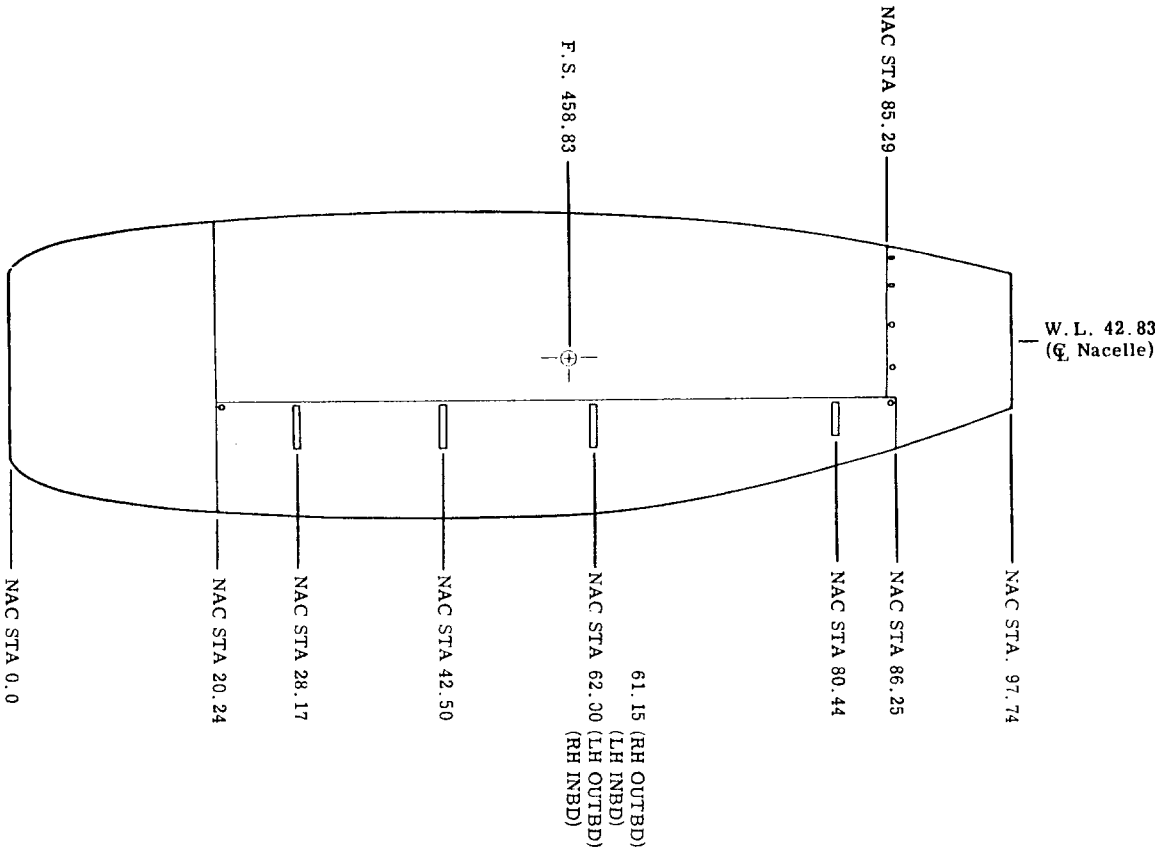
Aircraft Measurement System – Tip Tank Stations
Figure 1 (Sheet 10 of 13)



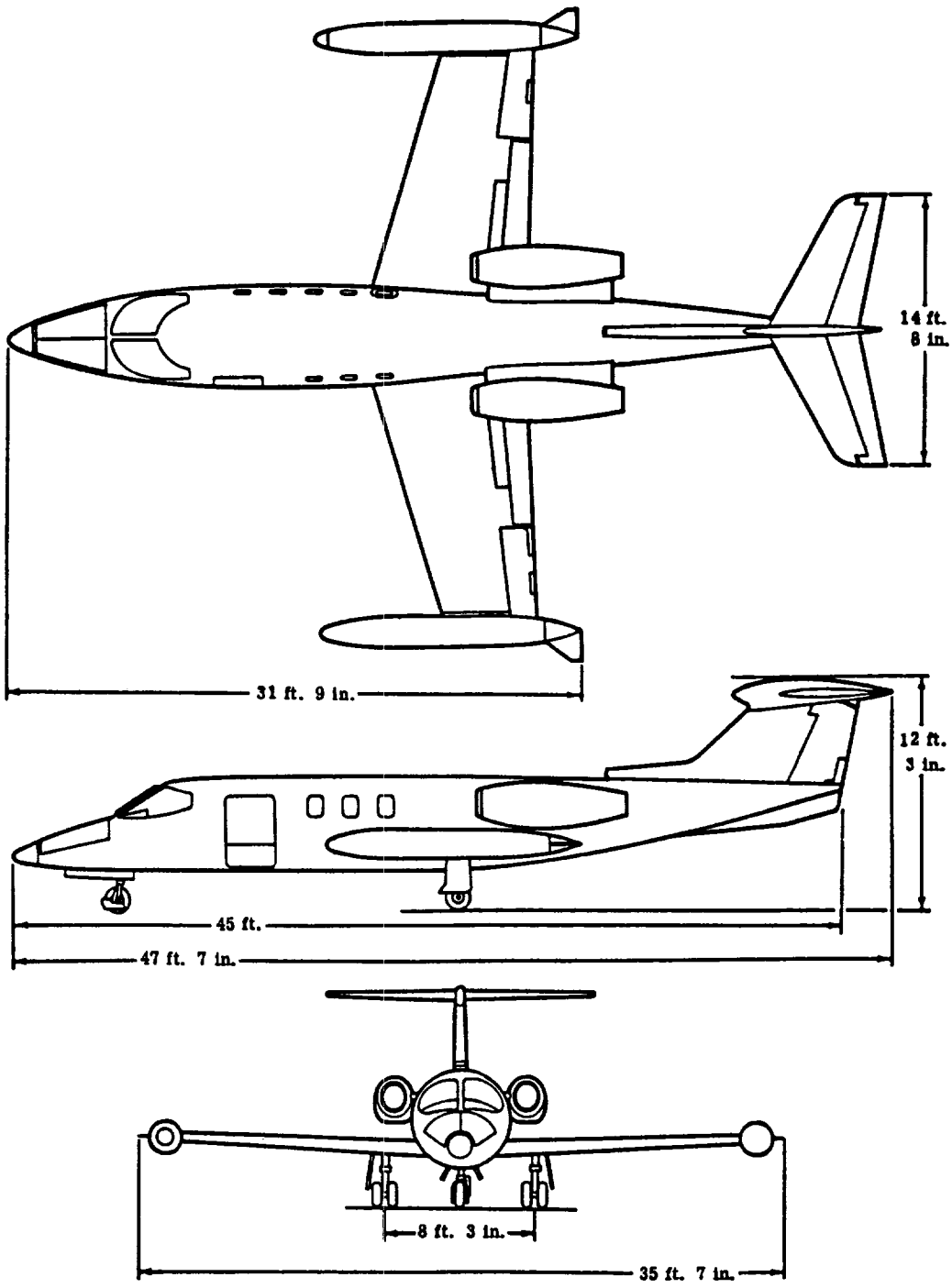
Aircraft Measurement System – Horizontal Stabilizer and Elevator Stations
Figure 1 (Sheet 11 of 13)



Aircraft Measurement System – Vertical Stabilizer and Rudder Stations
Figure 1 (Sheet 12 of 13)



Aircraft Measurement System – Nacelle Stations
Figure 1 (Sheet 13 of 13)



Aircraft Measurement System – Dimensions
Figure 2 (Sheet 1 of 13)

Subject	Dimensions
Aircraft	
Span (overall)	35 ft. 7 in.
Span (excluding tip tank fins)	34 ft. 1 in.
Length (overall)	47 ft. 7 in.
Height (overall)	12 ft. 3 in.
Wing	
Root Chord (fuselage centerline)	9 ft. 0 in.
Chord (@ WS 181)	5 ft. 1 in.
Dihedral	2° 30'
Sweepback (c/4)	13°
Incidence	1°
Aileron	
Span (nominal)	4 ft. 8 in.
Root Chord	1 ft. 5 in.
Tip Chord	1 ft. 1 in.
Trim Tab Span (LH only)	1 ft. 3 in.
Balance Tab Span (RH & LH)	1 ft. 9 in.
Flaps	
Type	Single Slotted
Span (nominal)	9 ft. 2 in.
Root Chord	2 ft. 4 in.
Tip Chord	1 ft. 8 in.
Horizontal Stabilizer	
Span	14 ft. 8 in.
Root Chord	5 ft. 0 in.
Tip Chord	2 ft. 4 in.
Sweepback (c/4 chord)	25°
Dihedral	0°
Elevators	
Span (per side)	7 ft. 2 in.
Root Chord	1 ft. 4 in.
Tip Chord	7 in.

Aircraft Measurement System – Dimensions
Figure 2 (Sheet 2 of 13)

Vertical Stabilizer

Span	5 ft. 6 in.
Root Chord	8 ft. 11 in.
Tip Chord	5 ft. 1 in.
Sweepback (c/4)	35° 36'

Fuselage

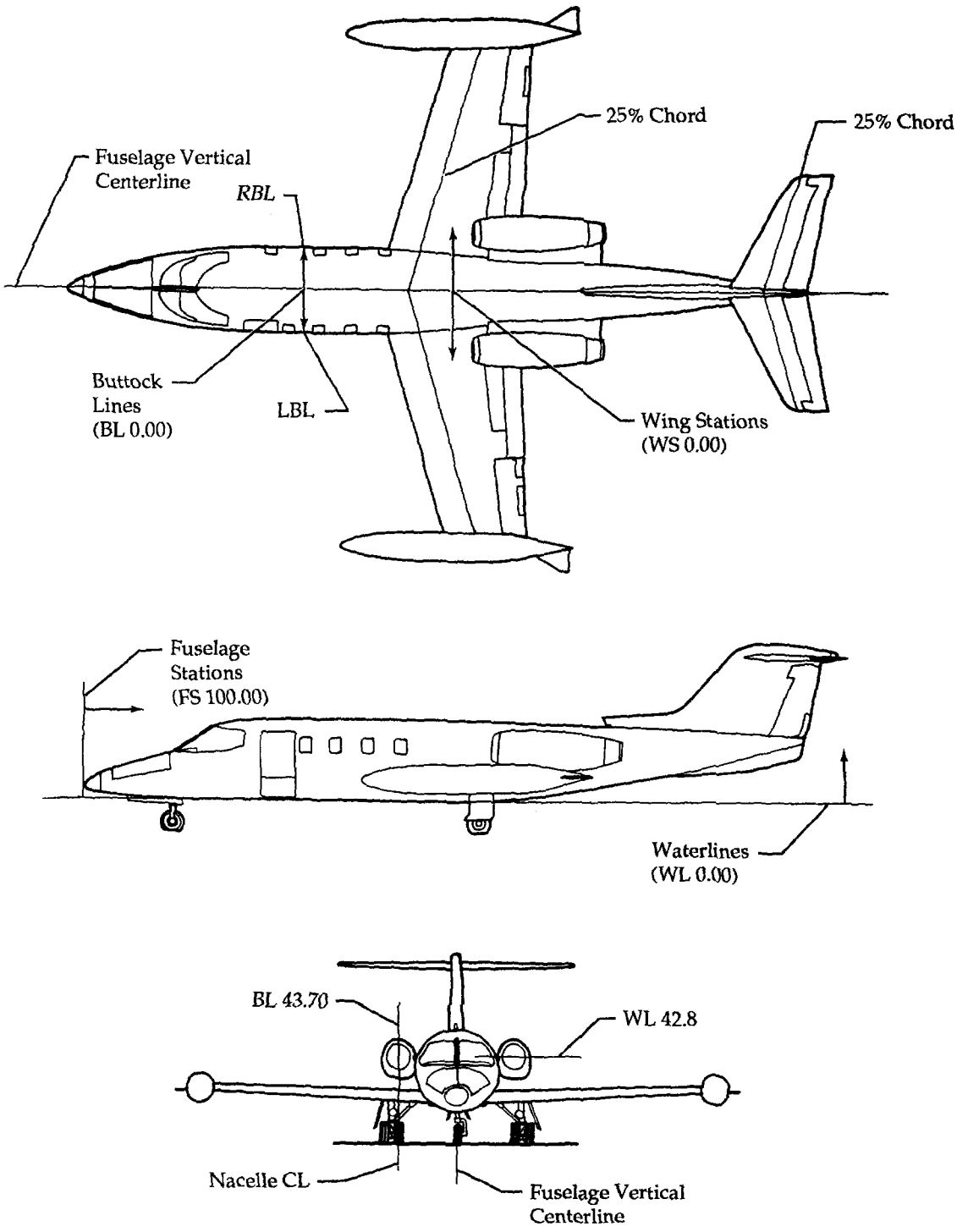
Fuselage Constant Section

Outside diameter	5 ft. 3 in.
Inside diameter	4 ft. 9 in.
Length of passenger area	11 ft. 4 in.
Height (floor to ceiling)	4 ft. 4 in.

Miscellaneous Areas

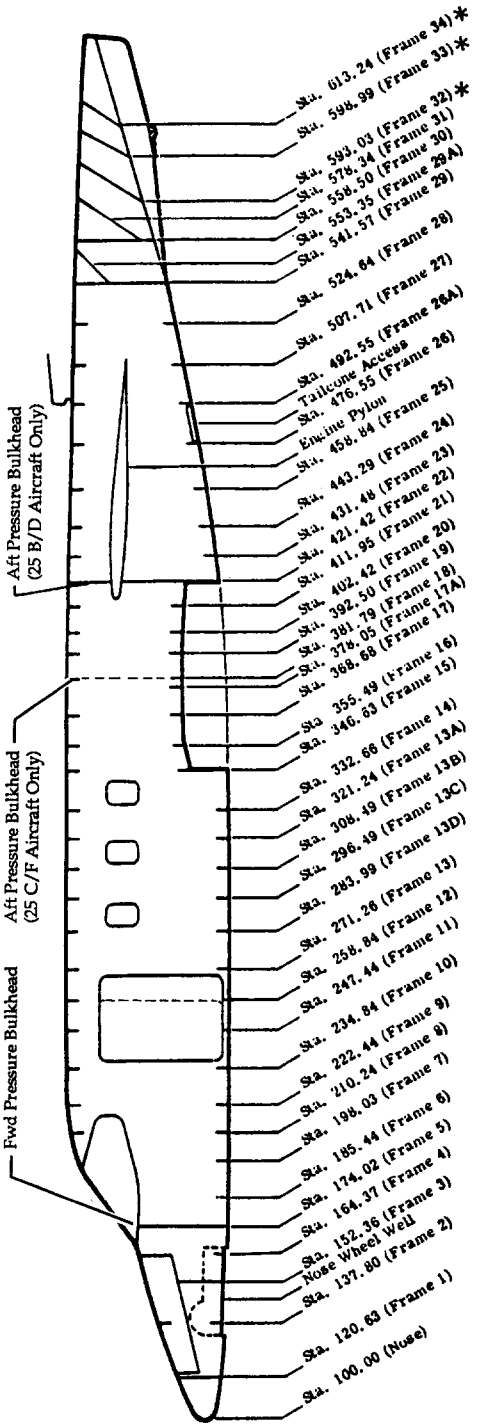
Wing	231.8 ft.^{2}
Aileron (per side)	5.854 ft.^{2}
Aileron Trim Tab (LH only)	0.335 ft.^{2}
Aileron Balance Tab (LH & RH)	1.25 ft.^{2}
Flaps (total)	36.85 ft.^{2}
Spoilers (total)	7.0 ft.^{2}
Horizontal Stabilizer (total)	54.0 ft.^{2}
Stabilizer (excluding elevator)	40.4 ft.^{2}
Elevator	13.6 ft.^{2}
Vertical Stabilizer (total)	38.35 ft.^{2}
Vertical Stabilizer (excluding rudder)	31.80 ft.^{2}
Rudder	6.55 ft.^{2}
Rudder Trim Tab	0.69 ft.^{2}

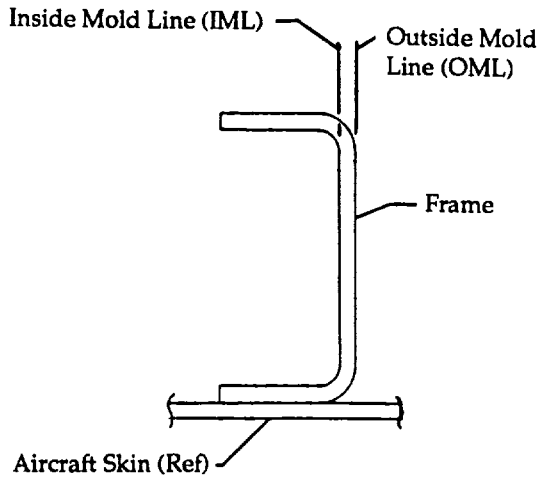
Aircraft Measurement System – Dimensions
Figure 2 (Sheet 3 of 13)



Aircraft Measurement System – Reference Points
Figure 2 (Sheet 4 of 13)

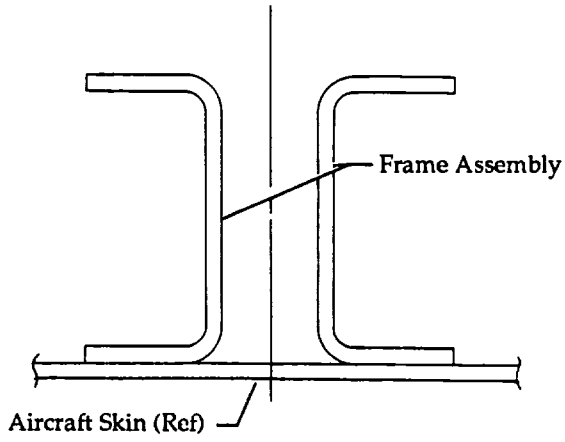
* Measured at OML of Bulkhead Intersection with Bottom ℄ of fuselage skin.





(TYPICAL)

(SINGLE FRAME MEMBER CROSS SECTION)

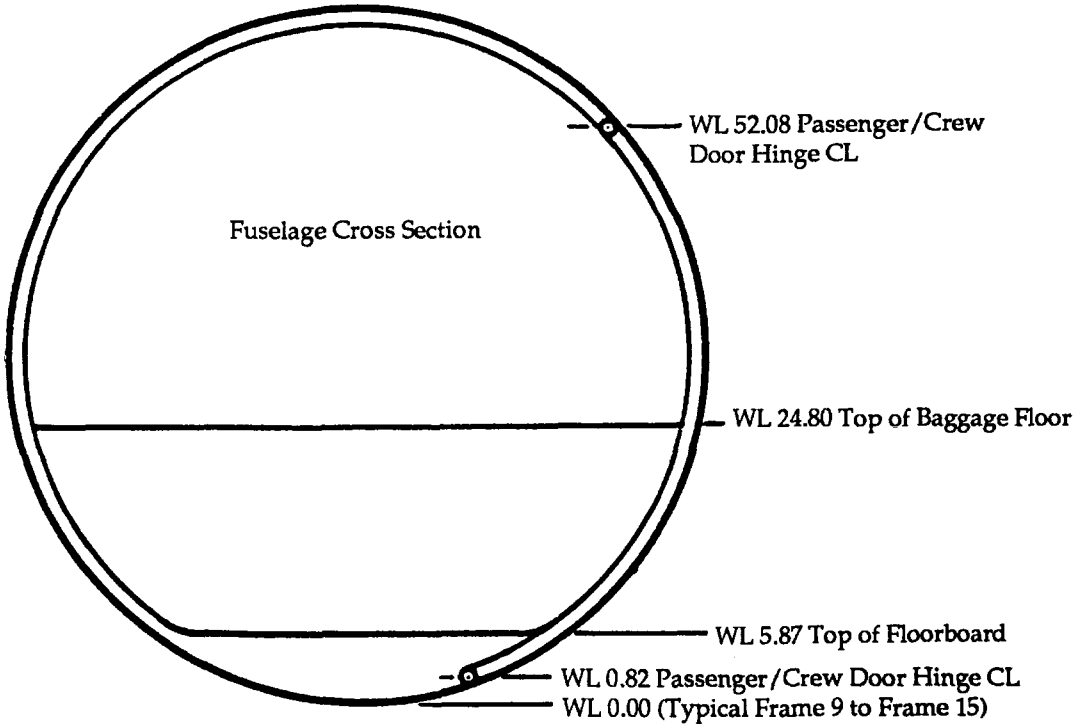


(TYPICAL)

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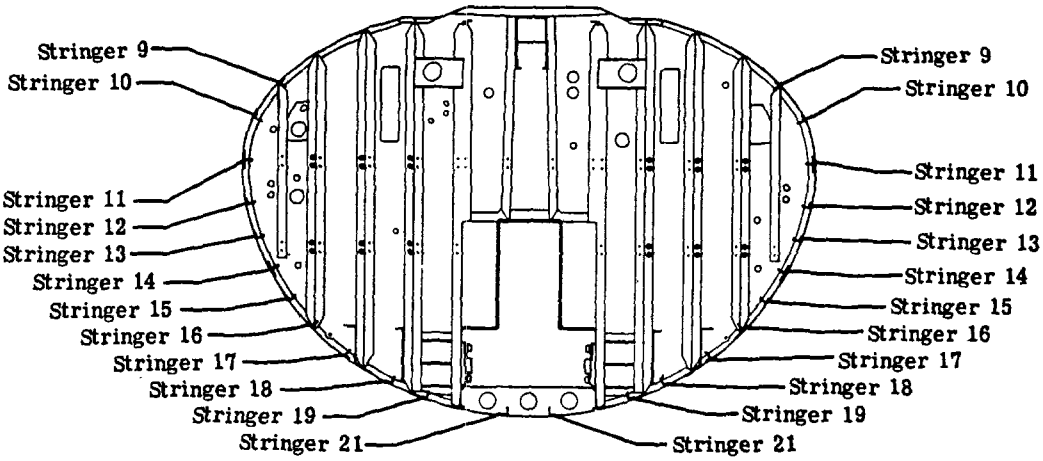
14-77B-1

Aircraft Measurement System – Fuselage Stations
Figure 2 (Sheet 5 of 13)

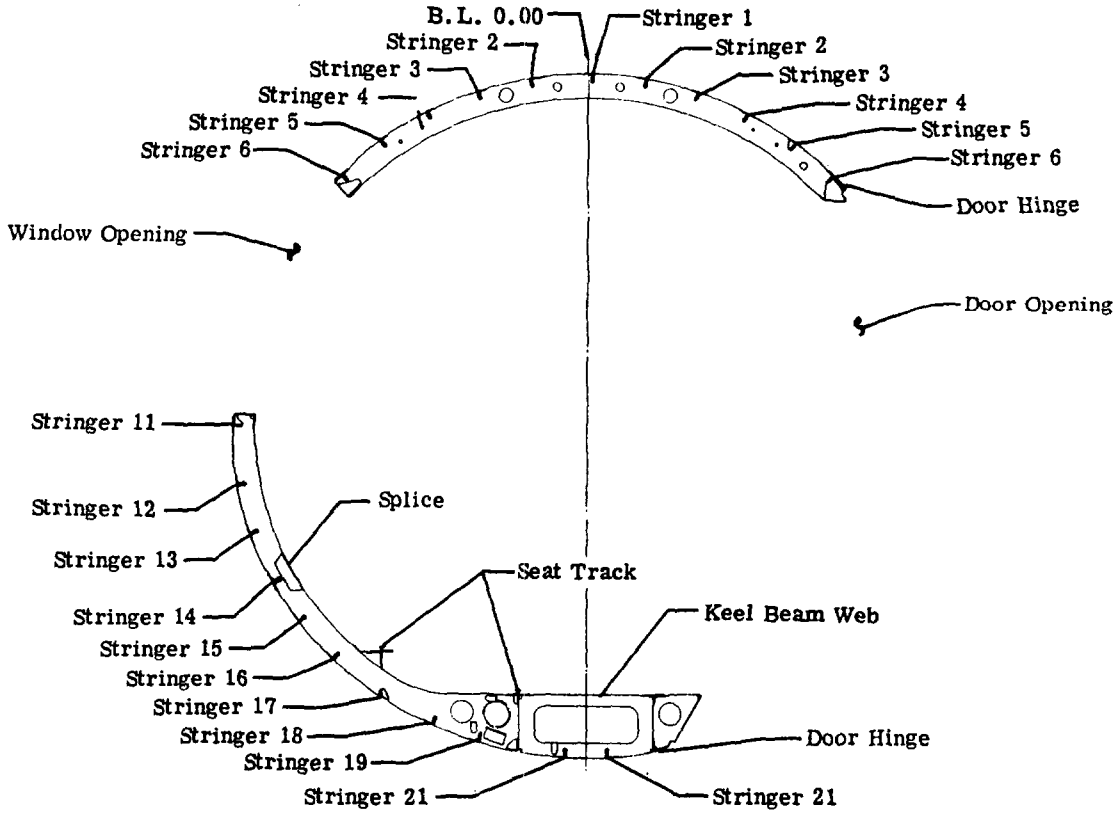


14-131B

Aircraft Measurement System – Fuselage Stations
Figure 2 (Sheet 6 of 13)

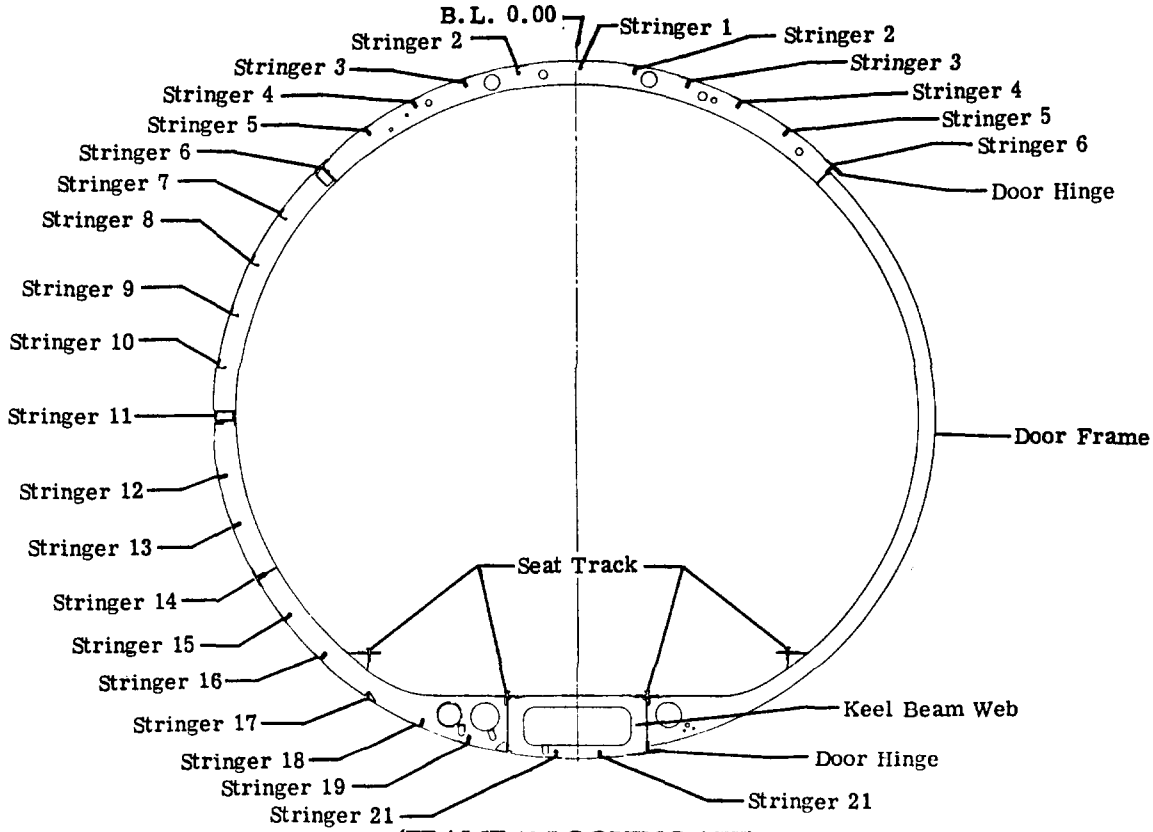


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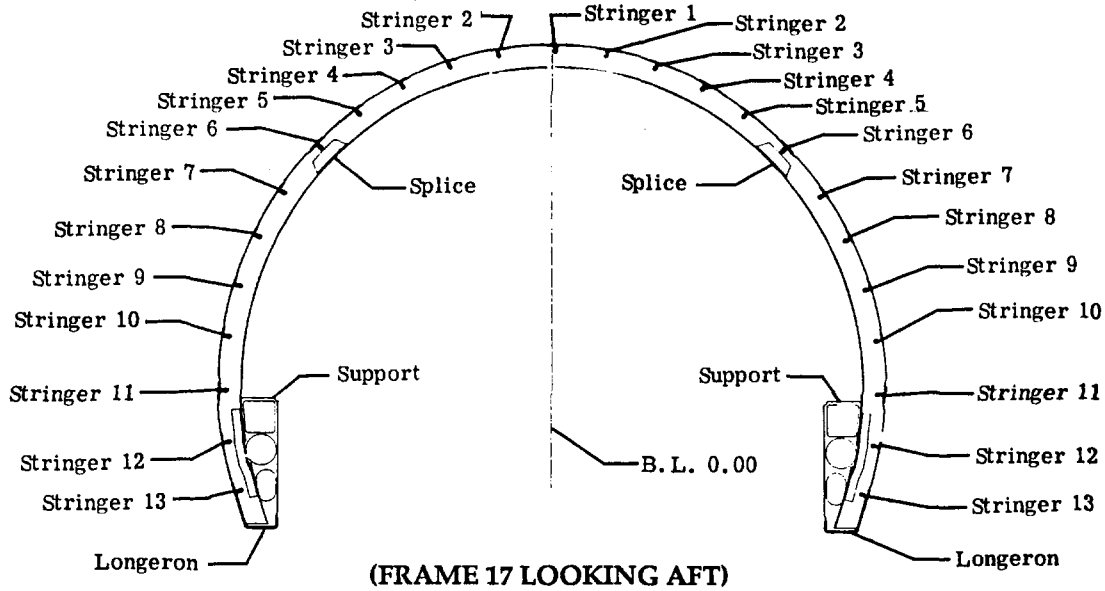


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Aircraft Measurement System – Fuselage Stations
Figure 2 (Sheet 7 of 13)

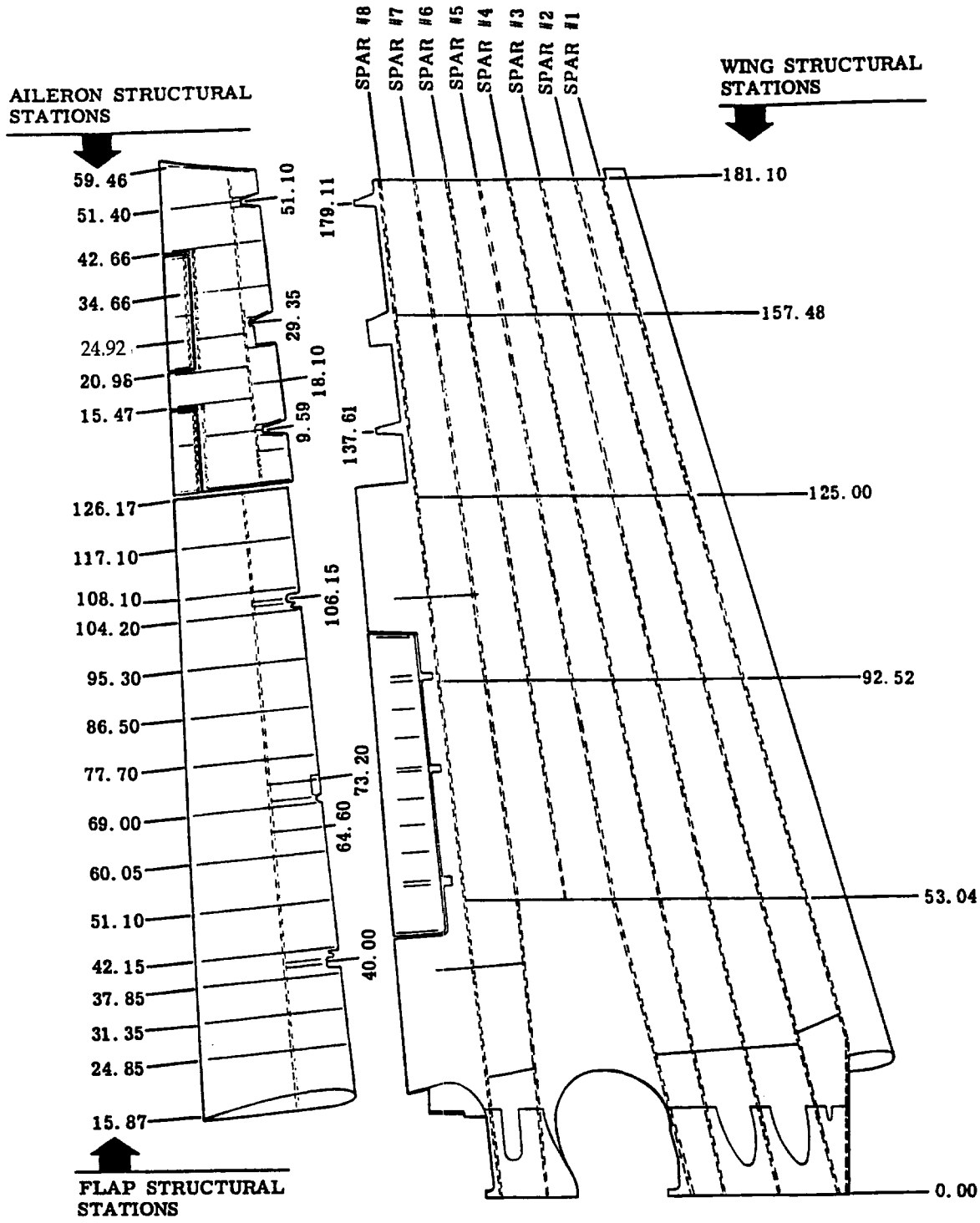


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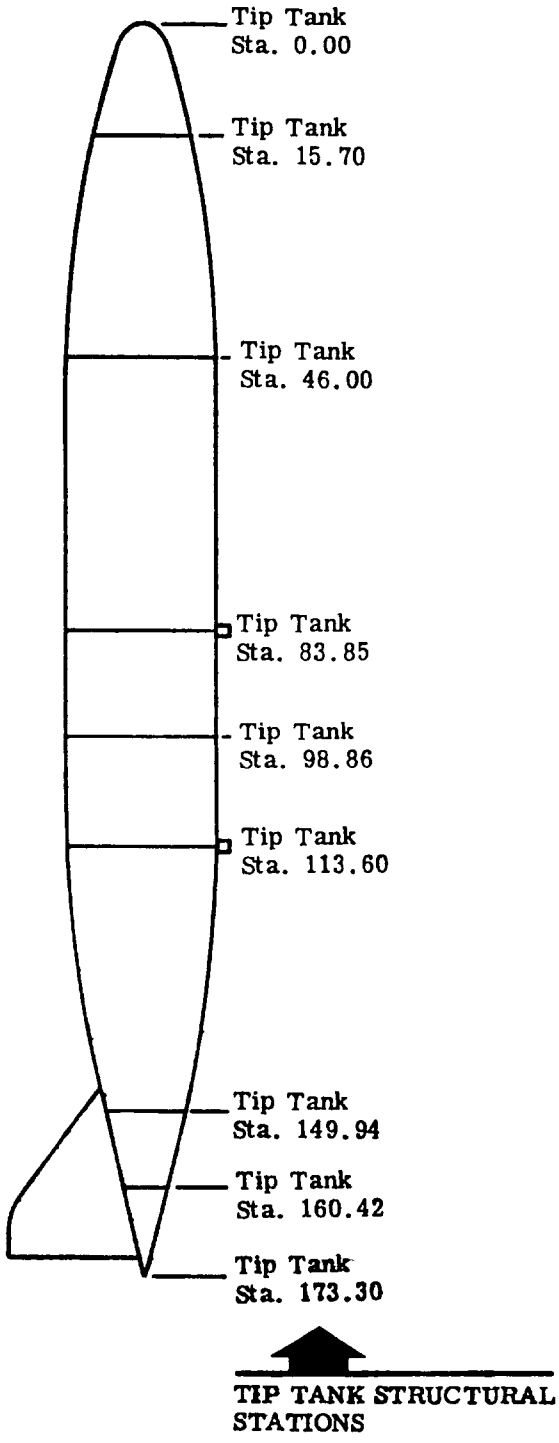


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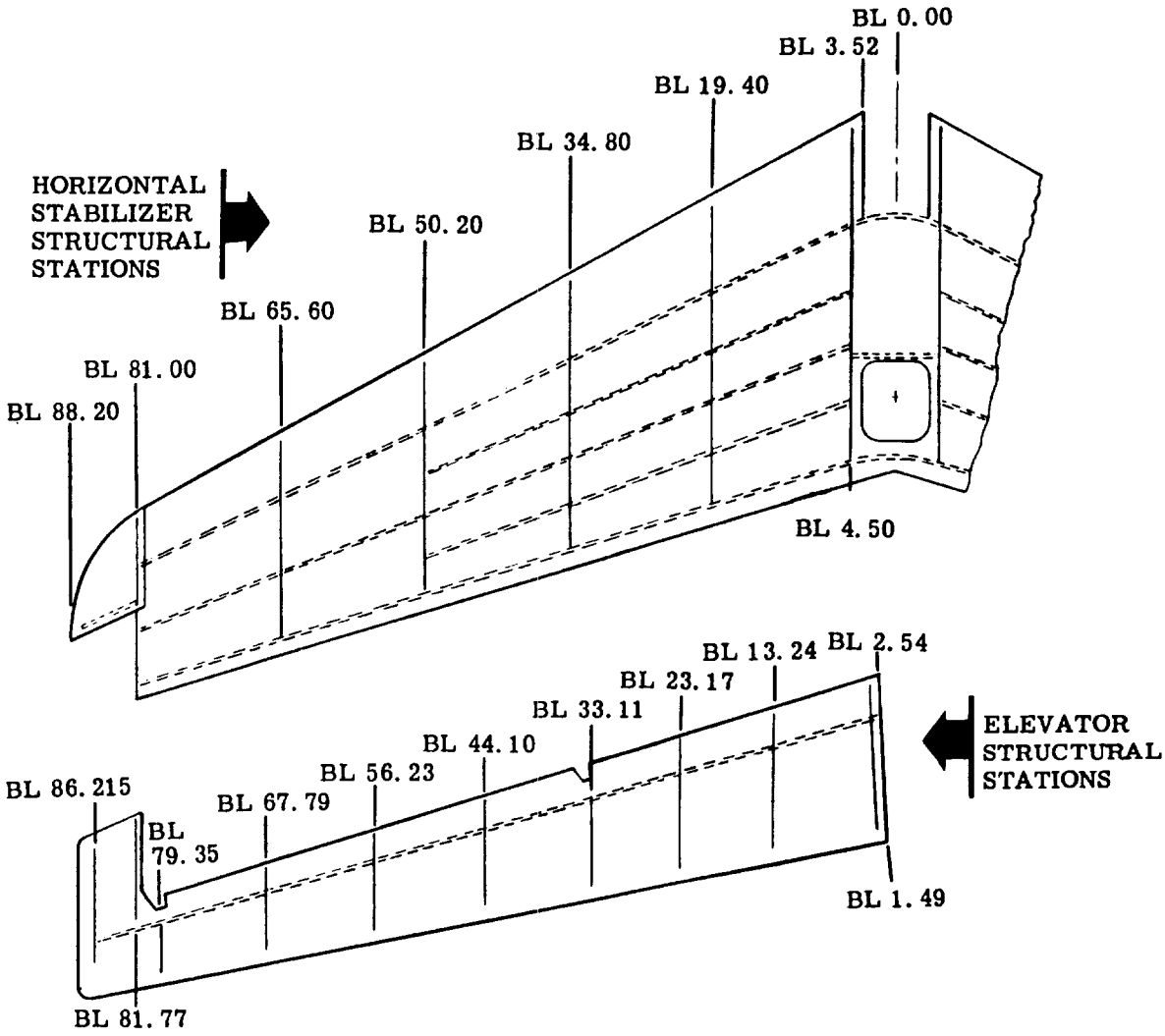
Aircraft Measurement System – Fuselage Stations
Figure 2 (Sheet 8 of 13)



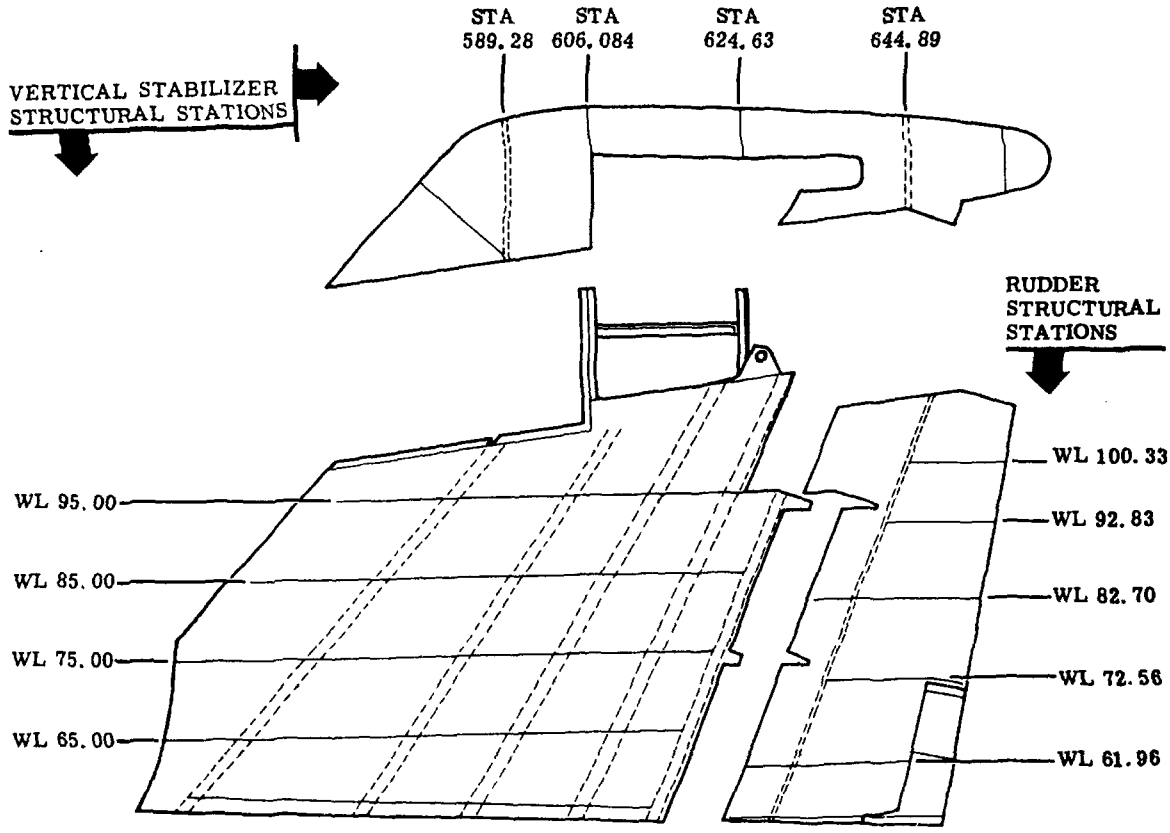
Aircraft Measurement System – Wing, Aileron and Flap Stations
Figure 2 (Sheet 9 of 13)



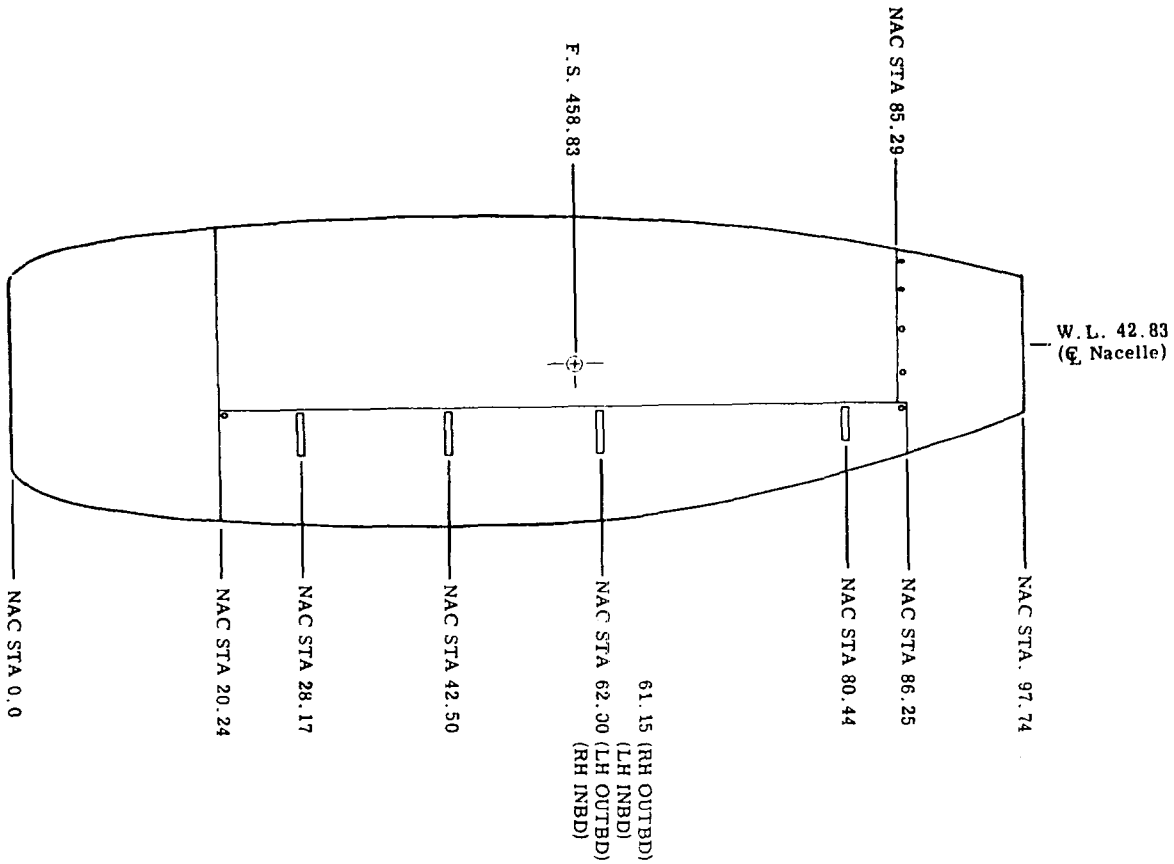
Aircraft Measurement System – Tip Tank Stations
Figure 2 (Sheet 10 of 13)



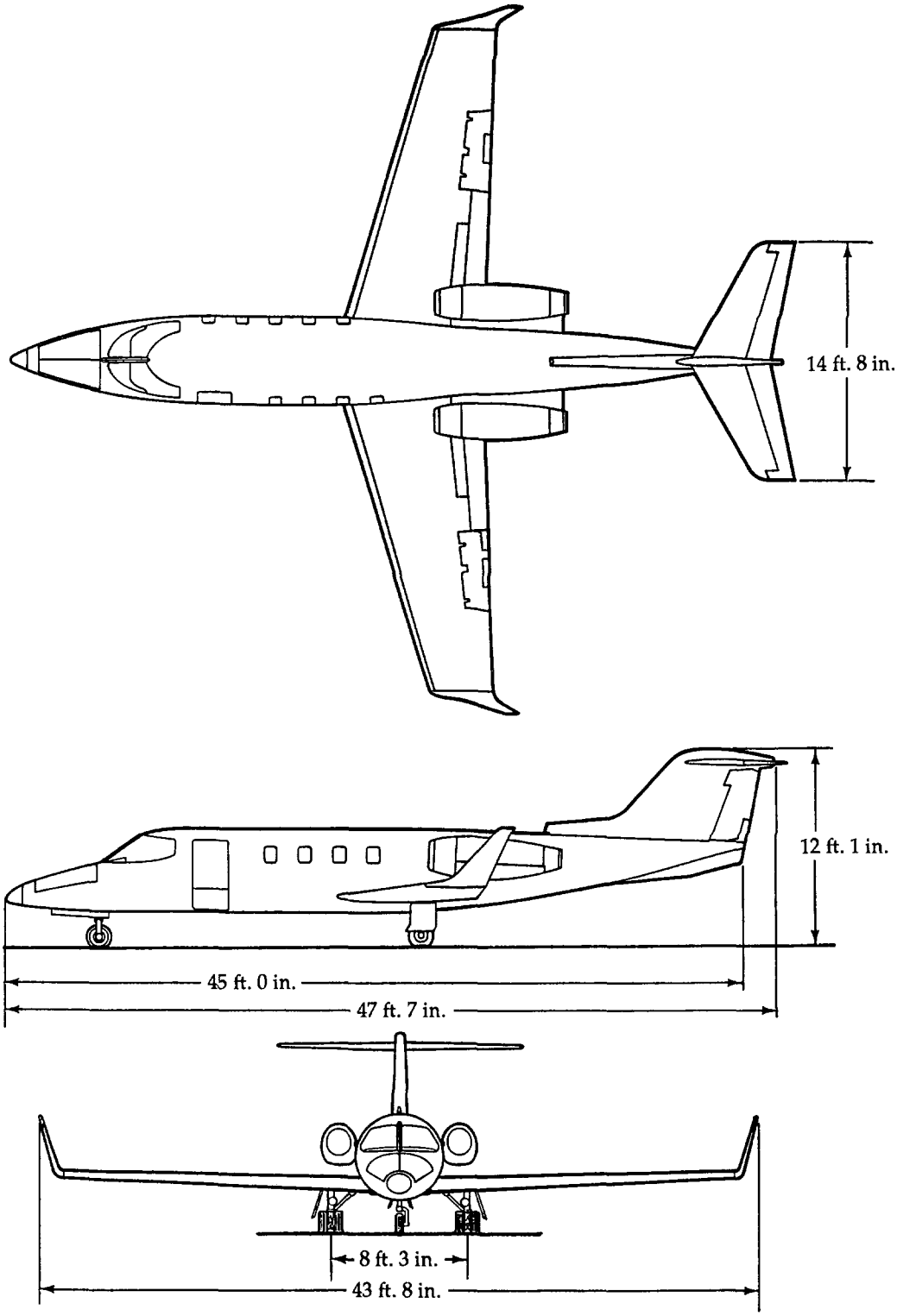
Aircraft Measurement System – Horizontal Stabilizer and Elevator Stations
Figure 2 (Sheet 11 of 13)



Aircraft Measurement System – Vertical Stabilizer and Rudder Stations
Figure 2 (Sheet 12 of 13)



Aircraft Measurement System – Nacelle Stations
Figure 2 (Sheet 13 of 13)



Aircraft Measurement System – Dimensions
Figure 3 (Sheet 1 of 13)

Subject	Dimensions
Aircraft	
Span (overall)	43 ft. 8 in.
Length (overall)	47 ft. 7 in.
Height (overall)	12 ft. 1 in.
Wing	
Root Chord (fuselage centerline)	9 ft. 0 in.
Chord (@ WS 181)	5 ft. 1 in.
Dihedral	2° 30'
Sweepback (c/4)	13°
Incidence	1°
Aileron	
Span (nominal)	4 ft. 8 in.
Root Chord	1 ft. 5 in.
Tip Chord	1 ft. 1 in.
Trim Tab Span (LH only)	1 ft. 3 in.
Balance Tab Span (RH & LH)	1 ft. 9 in.
Flaps	
Type	Single Slotted
Span (nominal)	9 ft. 2 in.
Root Chord	2 ft. 4 in.
Tip Chord	1 ft. 8 in.
Horizontal Stabilizer	
Span	14 ft. 8 in.
Root Chord	5 ft. 0 in.
Tip Chord	2 ft. 4 in.
Sweepback (c/4 chord)	25°
Dihedral	0°
Elevators	
Span (per side)	7 ft. 2 in.
Root Chord	1 ft. 4 in.
Tip Chord	7 in.

Aircraft Measurement System – Dimensions
Figure 3 (Sheet 2 of 13)

Vertical Stabilizer

Span	5 ft. 6 in.
Root Chord	8 ft. 11 in.
Tip Chord	5 ft. 1 in.
Sweepback (c/4)	35° 36'

Fuselage

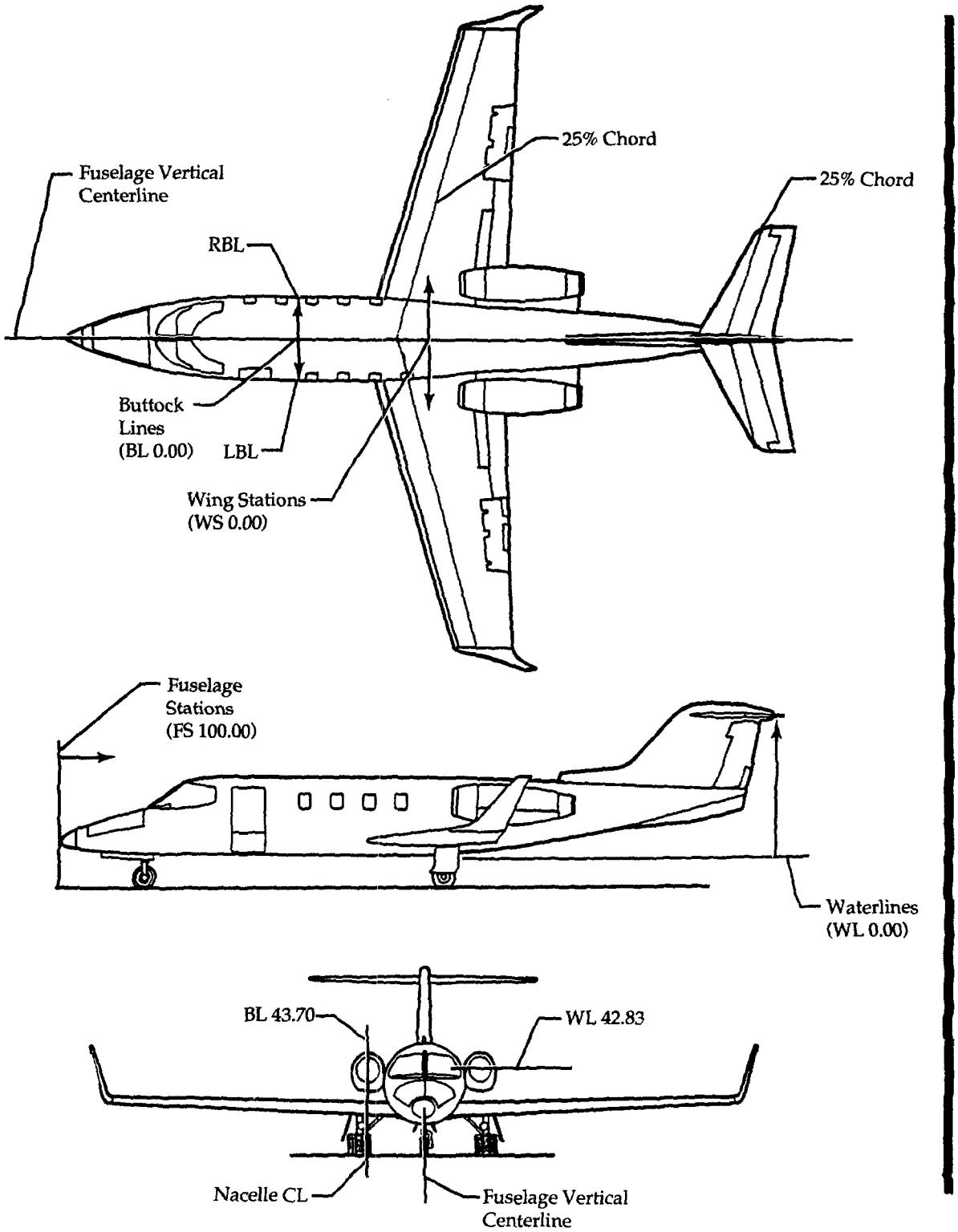
Fuselage Constant Section

Outside diameter	5 ft. 3 in.
Inside diameter	4 ft. 9 in.
Length of passenger area	11 ft. 4 in.
Height (floor to ceiling)	4 ft. 4 in.

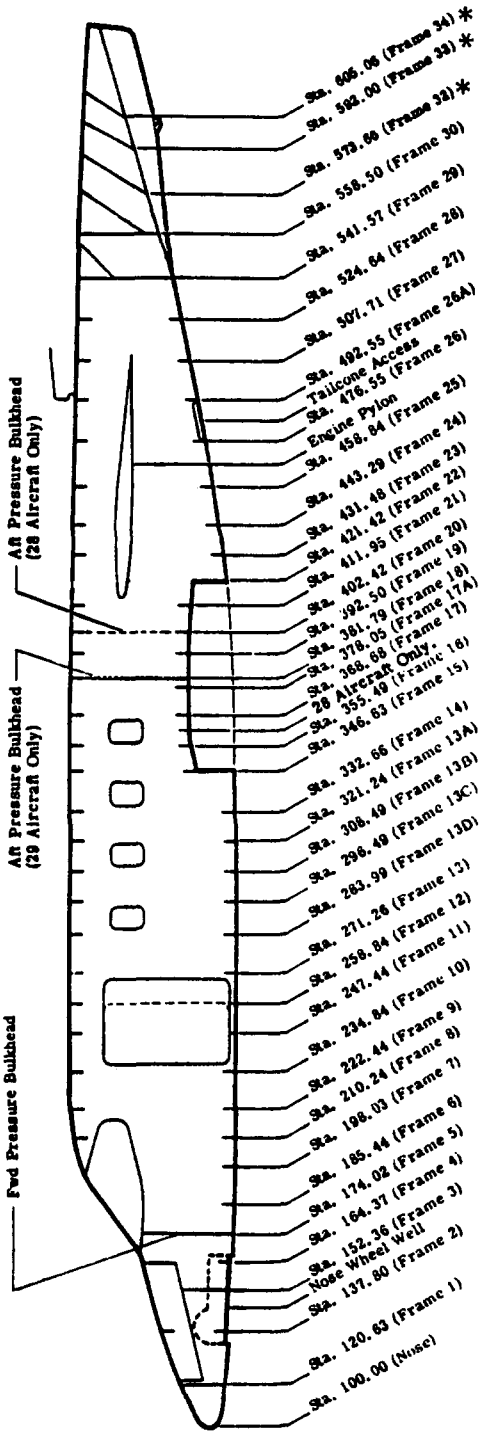
Miscellaneous Areas

Wing	212.9 ft. ^{2}
Aileron (per side)	5.854 ft. ^{2}
Aileron Trim Tab (LH only)	0.335 ft. ^{2}
Aileron Balance Tab (LH & RH)	1.25 ft. ^{2}
Flaps (total)	36.85 ft. ^{2}
Spoilers (total)	7.0 ft. ^{2}
Horizontal Stabilizer (total)	54.0 ft. ^{2}
Stabilizer (excluding elevator)	40.4 ft. ^{2}
Elevator	13.6 ft. ^{2}
Vertical Stabilizer (total)	38.35 ft. ^{2}
Vertical Stabilizer (excluding rudder)	31.80 ft. ^{2}
Rudder	6.55 ft. ^{2}
Rudder Trim Tab	0.69 ft. ^{2}

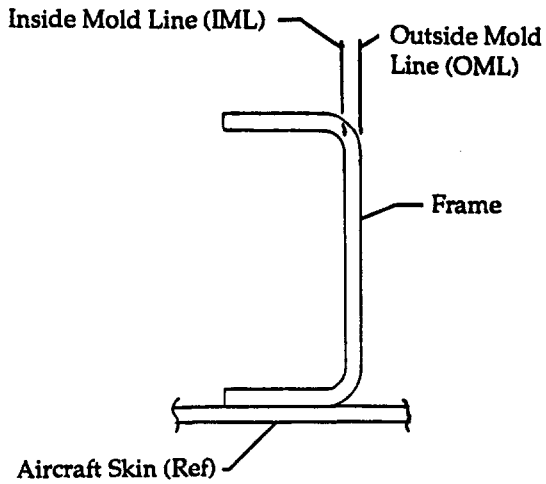
Aircraft Measurement System – Dimensions
Figure 3 (Sheet 3 of 13)



Aircraft Measurement System – Reference Points
Figure 3 (Sheet 4 of 13)

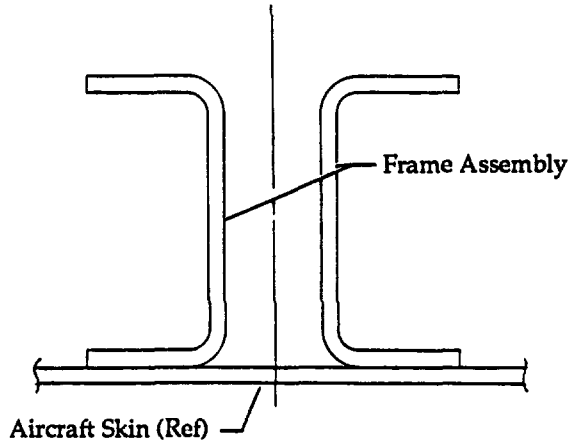


* Measured at OML of Bulkhead Intersection with Bottom ℄ of fuselage skin.



(TYPICAL)

(SINGLE FRAME MEMBER CROSS SECTION)

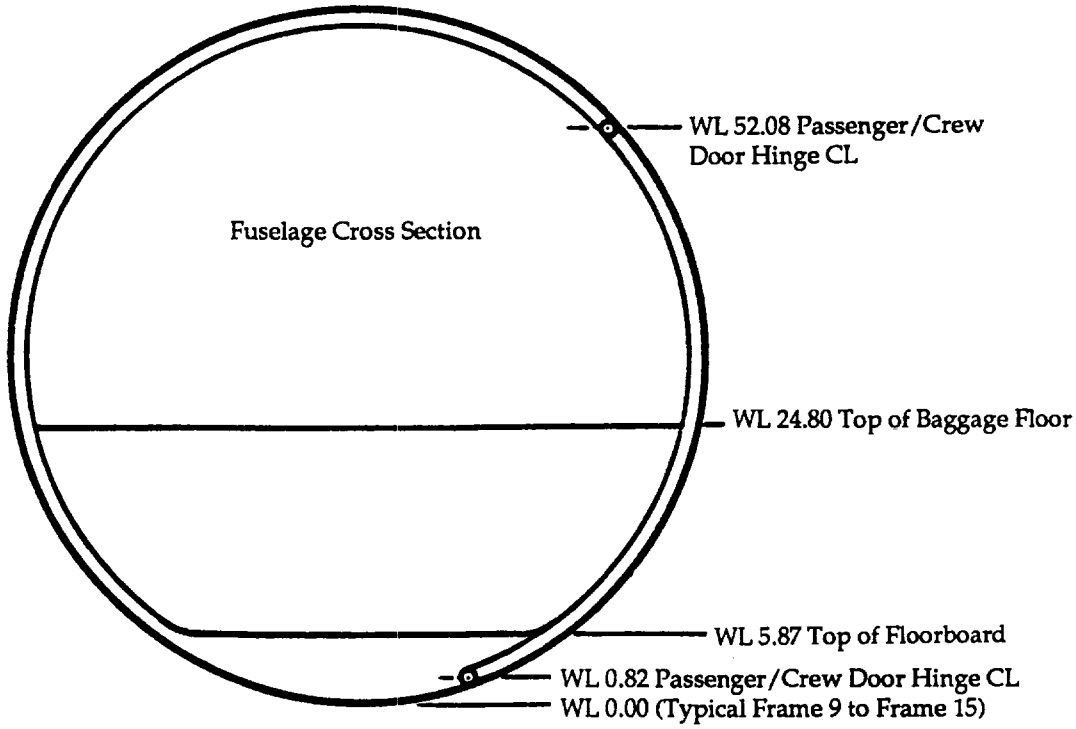


(TYPICAL)

(DOUBLE FRAME MEMBER CROSS SECTION)

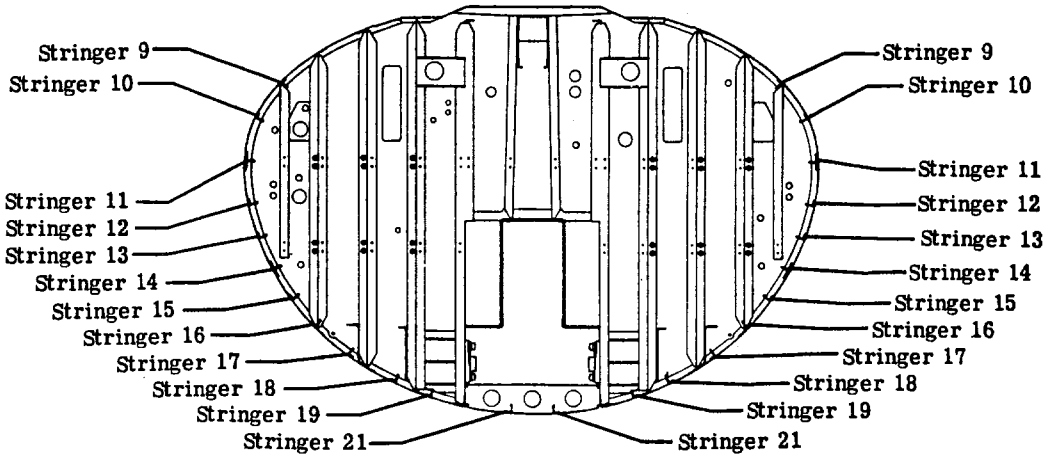
14-77B-1

Aircraft Measurement System – Fuselage Stations
Figure 3 (Sheet 5 of 13)

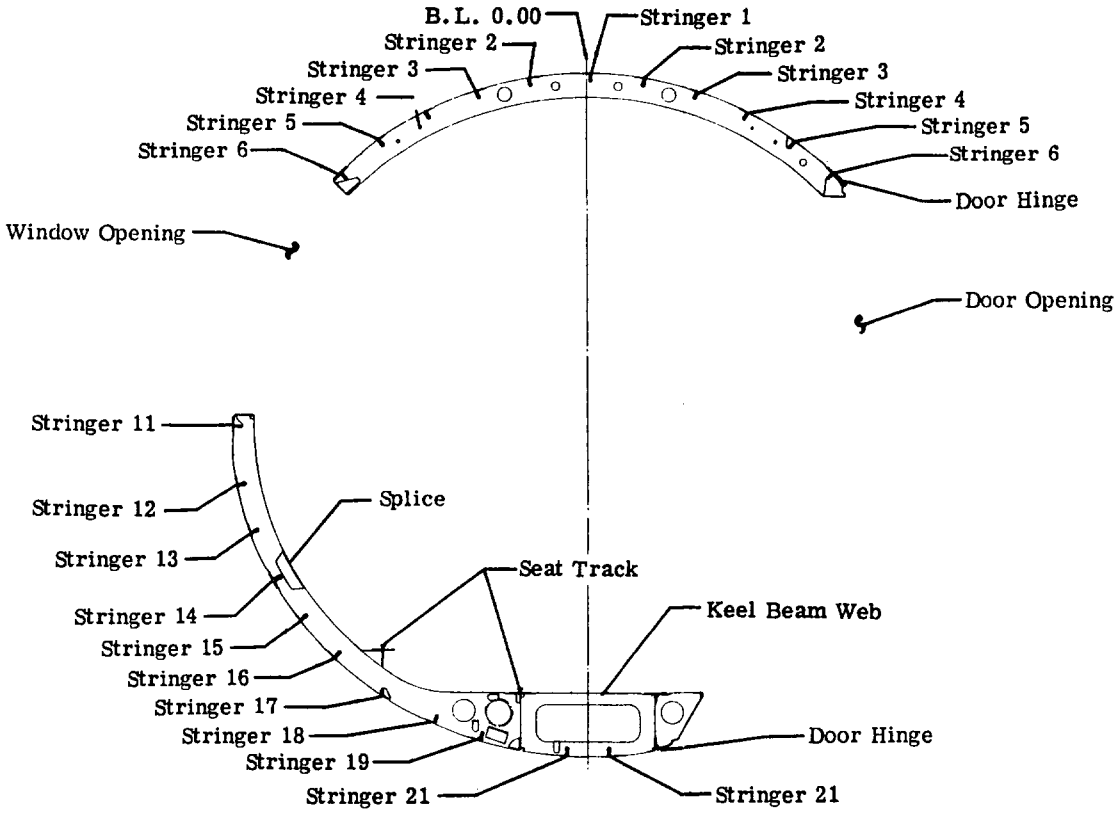


14-131B

Aircraft Measurement System – Fuselage Stations
Figure 3 (Sheet 6 of 13)

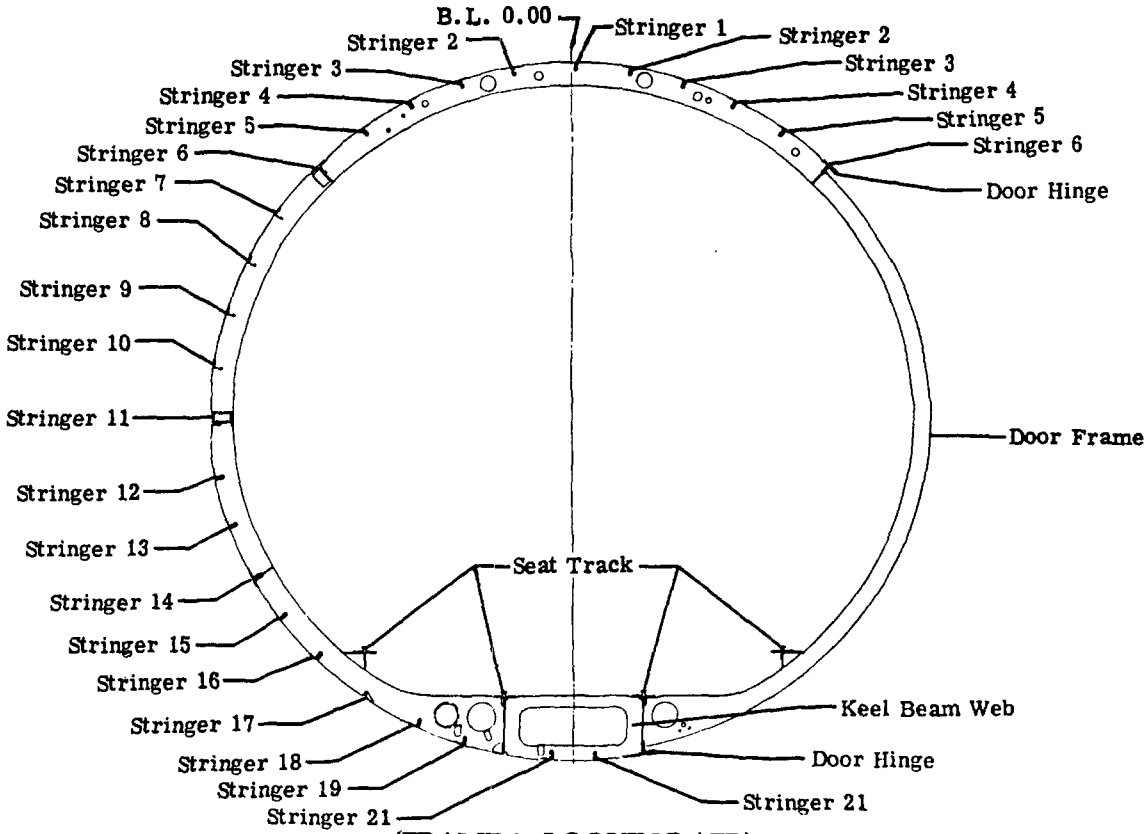


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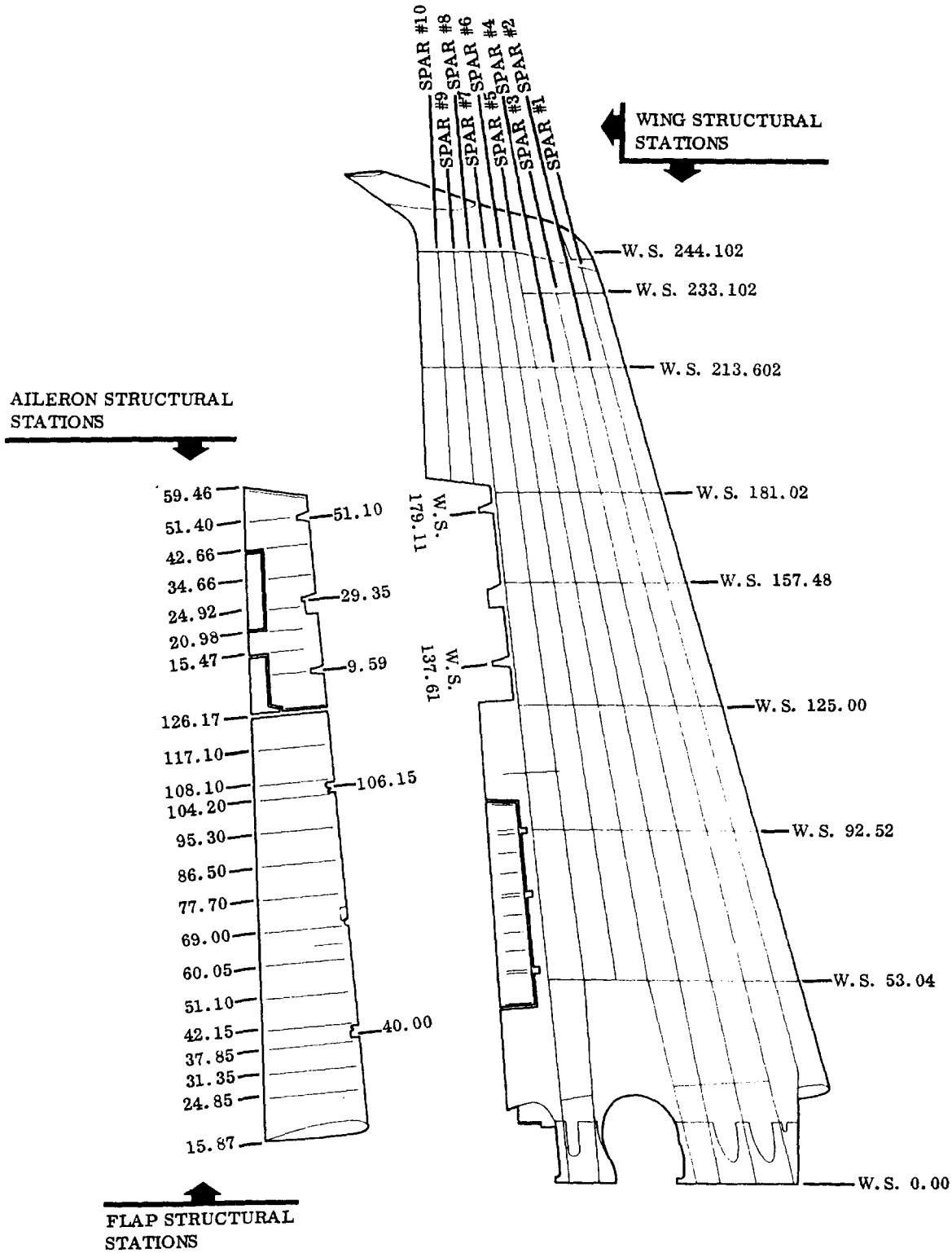


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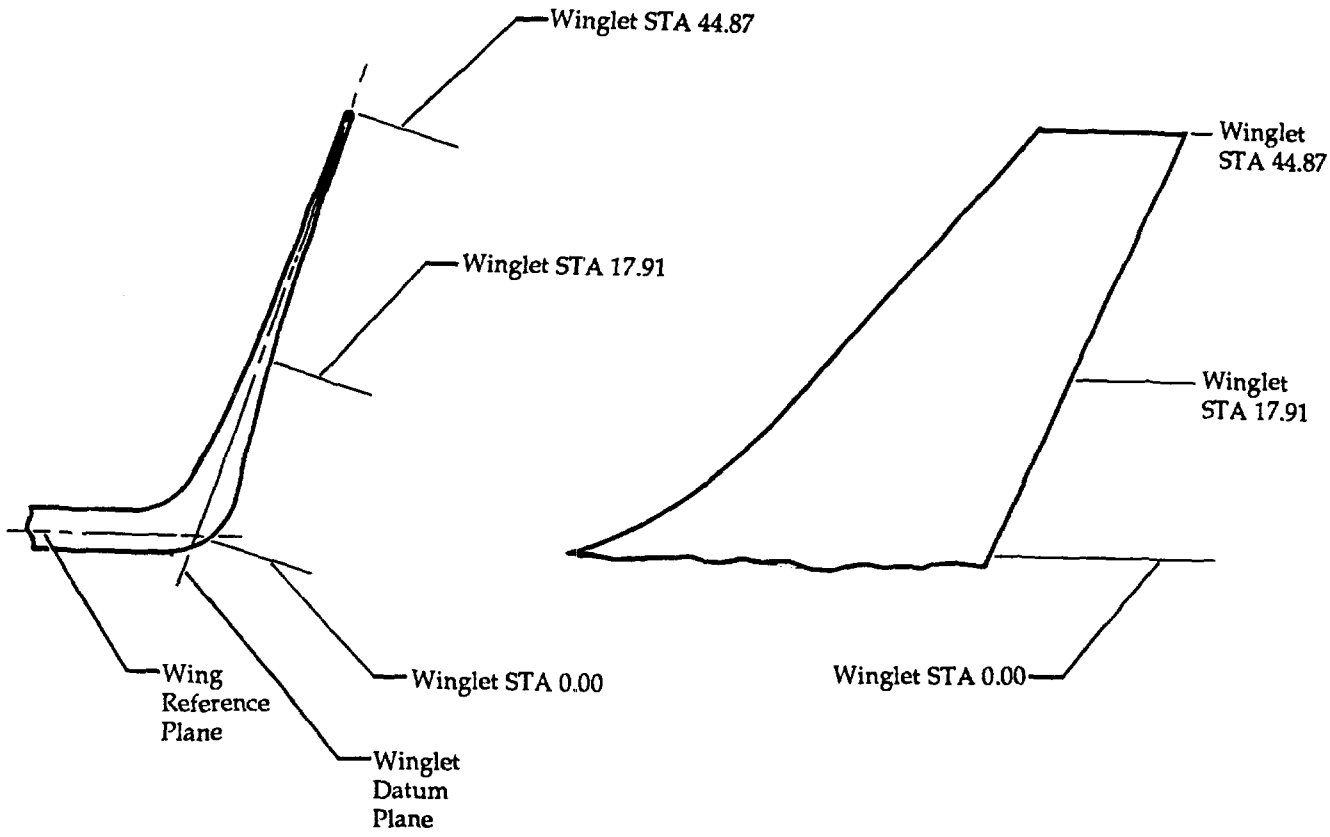
Aircraft Measurement System – Fuselage Stations
Figure 3 (Sheet 7 of 13)



Aircraft Measurement System – Fuselage Stations
Figure 3 (Sheet 8 of 13)



Aircraft Measurement System – Wing, Aileron and Flap Stations
Figure 3 (Sheet 9 of 13)



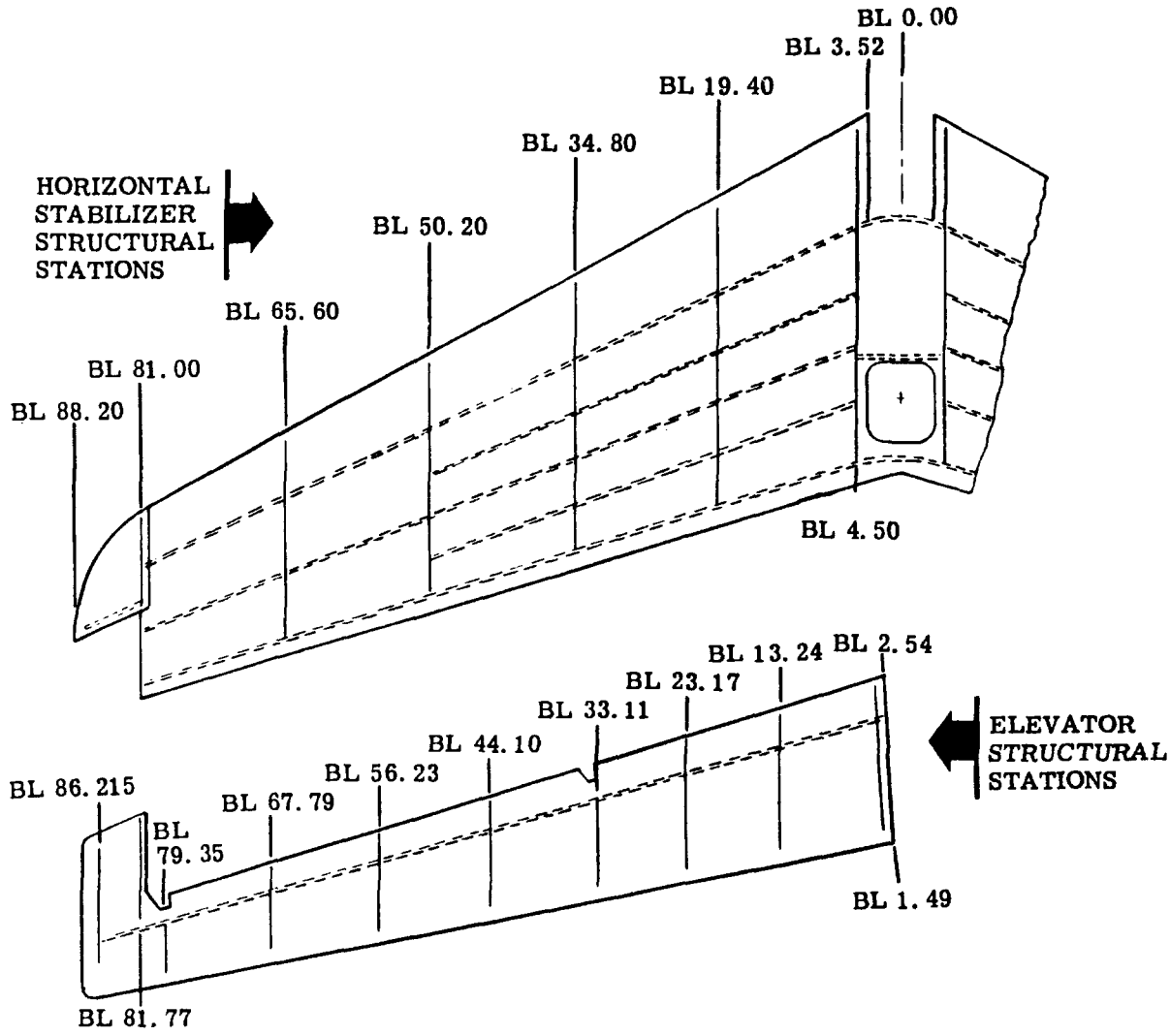
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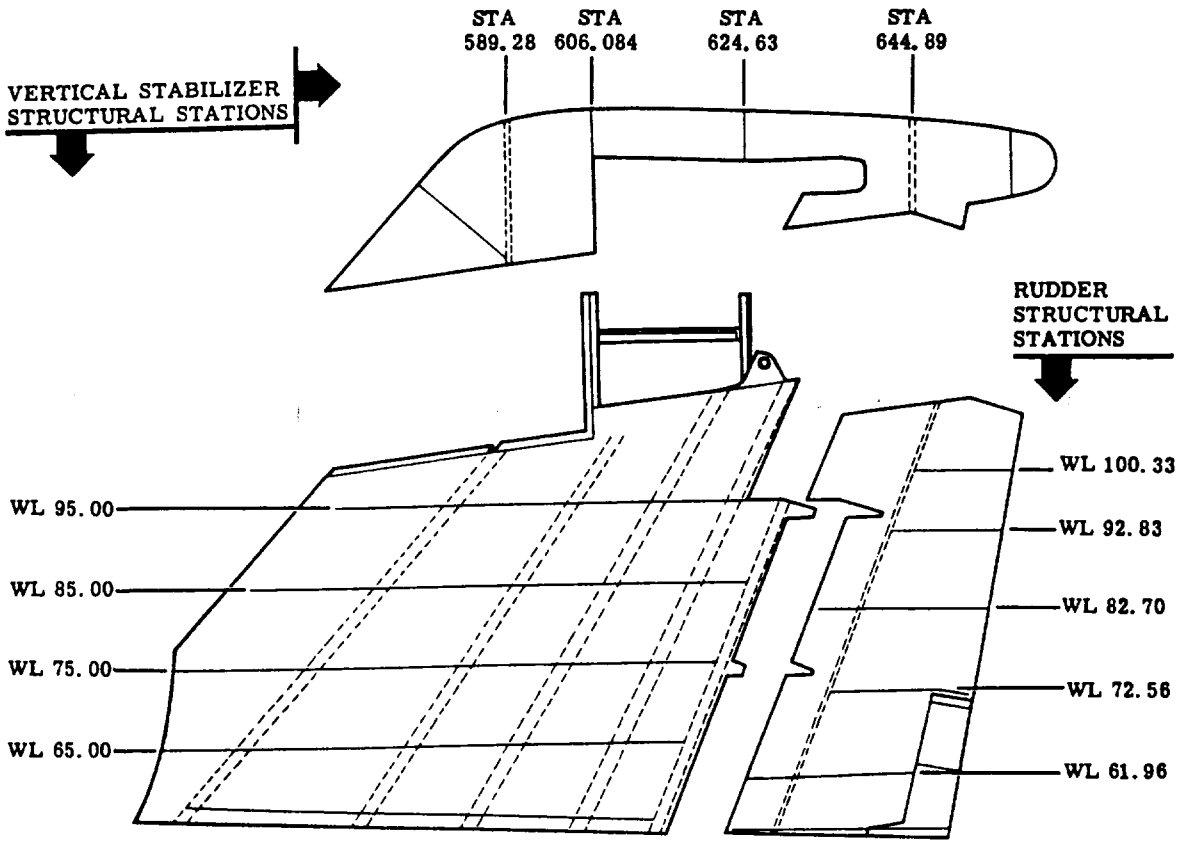
4-68B

Aircraft Measurement System – Winglet Stations
Figure 3 (Sheet 10 of 13)

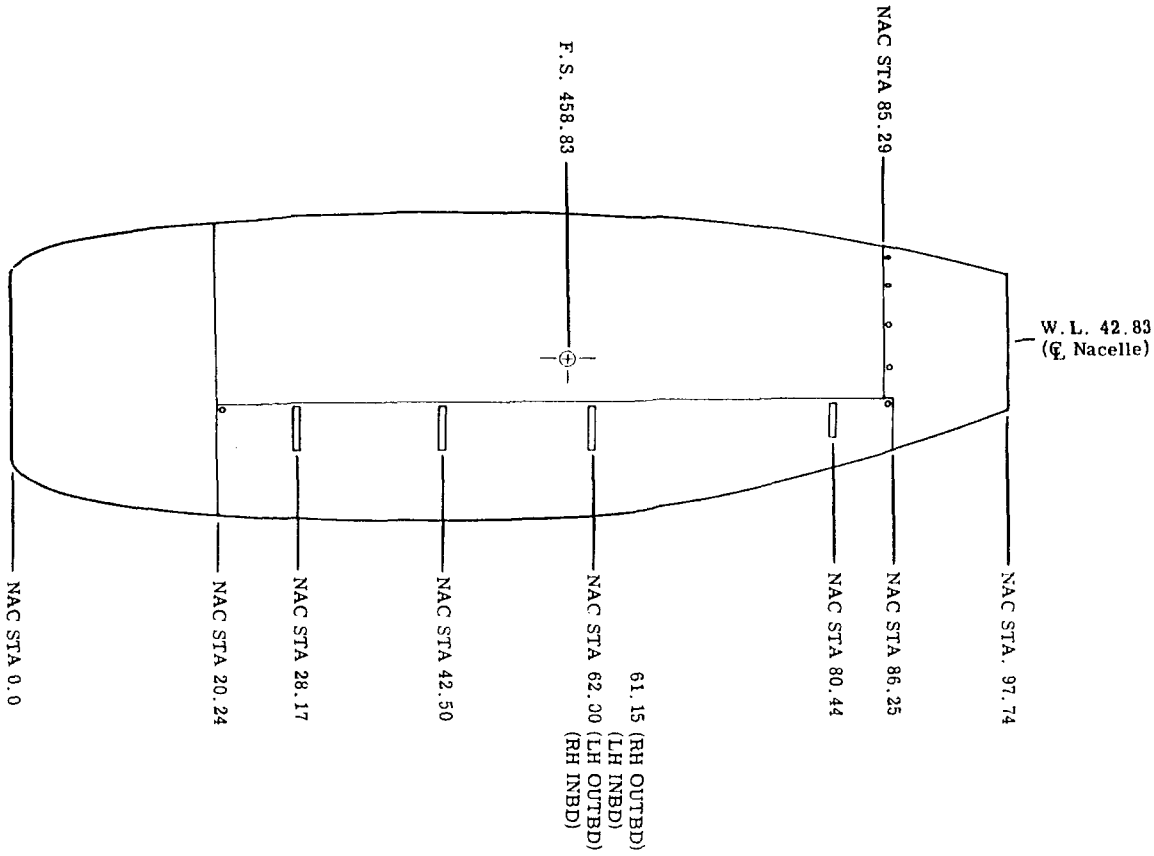
EFFECTIVITY: MODEL 28/29 SERIES AIRCRAFT



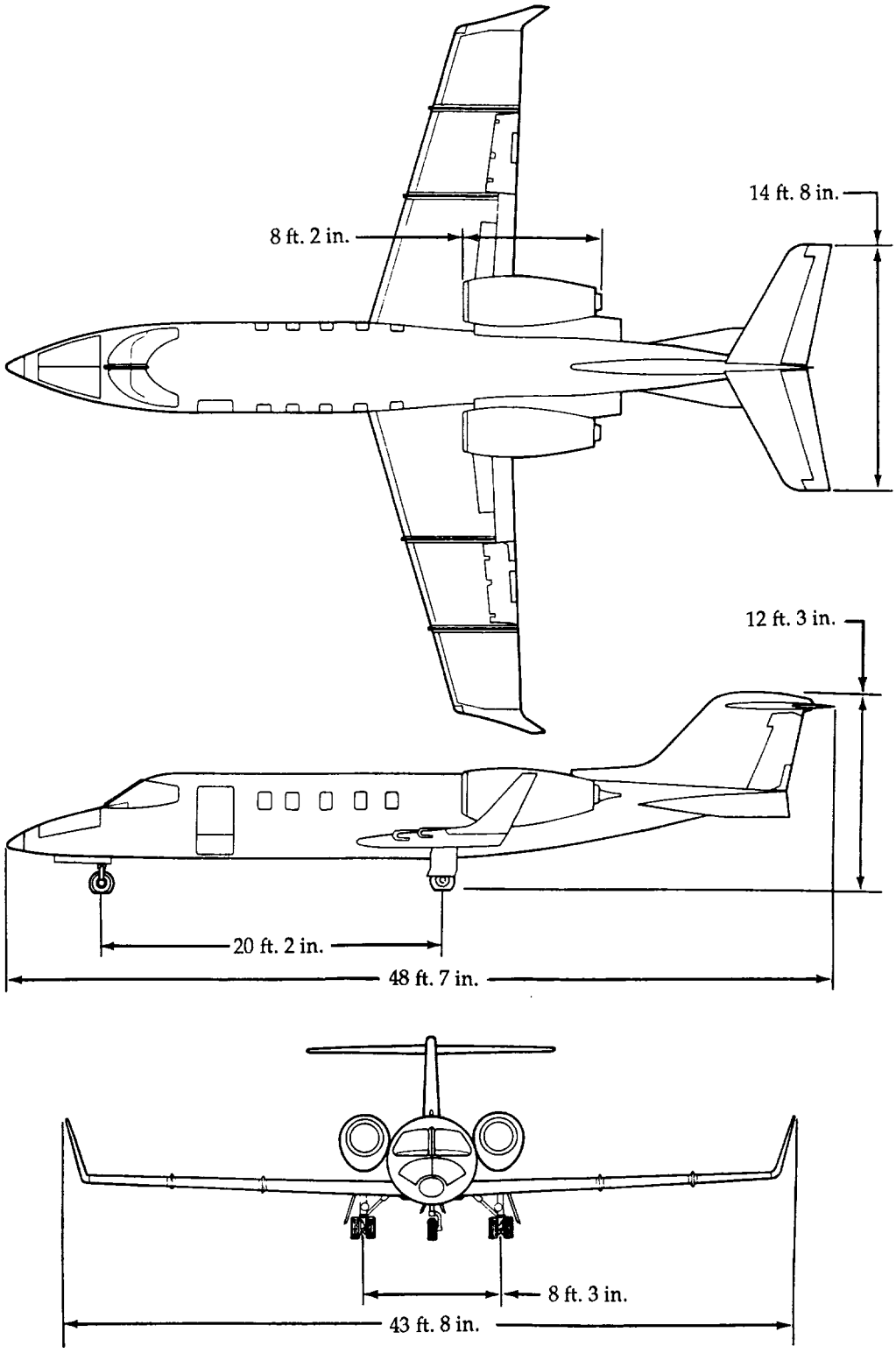
Aircraft Measurement System – Horizontal Stabilizer and Elevator Stations
Figure 3 (Sheet 11 of 13)



Aircraft Measurement System – Vertical Stabilizer and Rudder Stations
Figure 3 (Sheet 12 of 13)



Aircraft Measurement System – Nacelle Stations
Figure 3 (Sheet 13 of 13)



Aircraft Measurement System – Dimensions
Figure 4 (Sheet 1 of 13)

Subject	Dimensions
Aircraft	
Span (overall)	43 ft. 8 in.
Length (overall)	48 ft. 7 in.
Height (overall)	12 ft. 3 in.
Wing	
Root Chord (fuselage centerline)	9 ft. 0 in.
Chord (@ WS 181.1)	5 ft. 1 in.
Dihedral	2° 30'
Sweepback (c/4)	13°
Incidence	1°
Aileron	
Span (nominal)	4 ft. 9 in.
Root Chord	1 ft. 5 in.
Tip Chord	1 ft. 1 in.
Trim Tab Span (LH only)	1 ft. 3 in.
Balance Tab Span (RH & LH)	1 ft. 9 in.
Flaps	
Type	Single Slotted
Span (nominal)	9 ft. 2 in.
Root Chord	2 ft. 4 in.
Tip Chord	1 ft. 8 in.
Horizontal Stabilizer	
Span	14 ft. 8 in.
Root Chord	5 ft. 0 in.
Tip Chord	2 ft. 4 in.
Sweepback (c/4 chord)	25°
Dihedral	0°
Elevators	
Span (per side)	7 ft. 2 in.
Root Chord	1 ft. 4 in.
Tip Chord	7 in.

Aircraft Measurement System – Dimensions
Figure 4 (Sheet 2 of 13)

Vertical Stabilizer

Span	5 ft. 6 in.
Root Chord	8 ft. 11 in.
Tip Chord	5 ft. 1 in.
Sweepback (c/4)	35° 36'

Fuselage

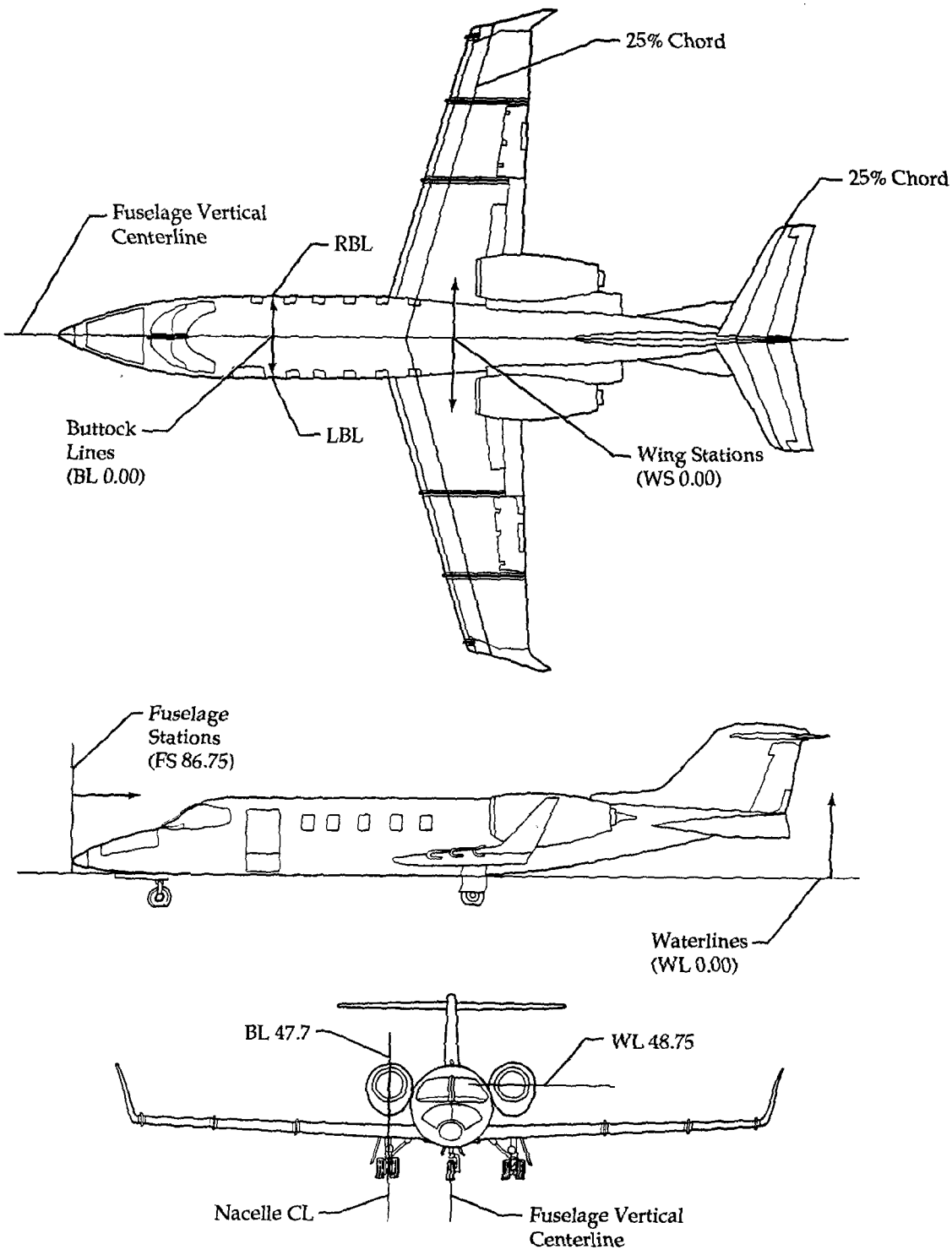
Fuselage Constant Section

Outside diameter	5 ft. 3 in.
Inside diameter	4 ft. 9 in.
Length of passenger area	11 ft. 4 in.
Height (floor to ceiling)	4 ft. 4 in.

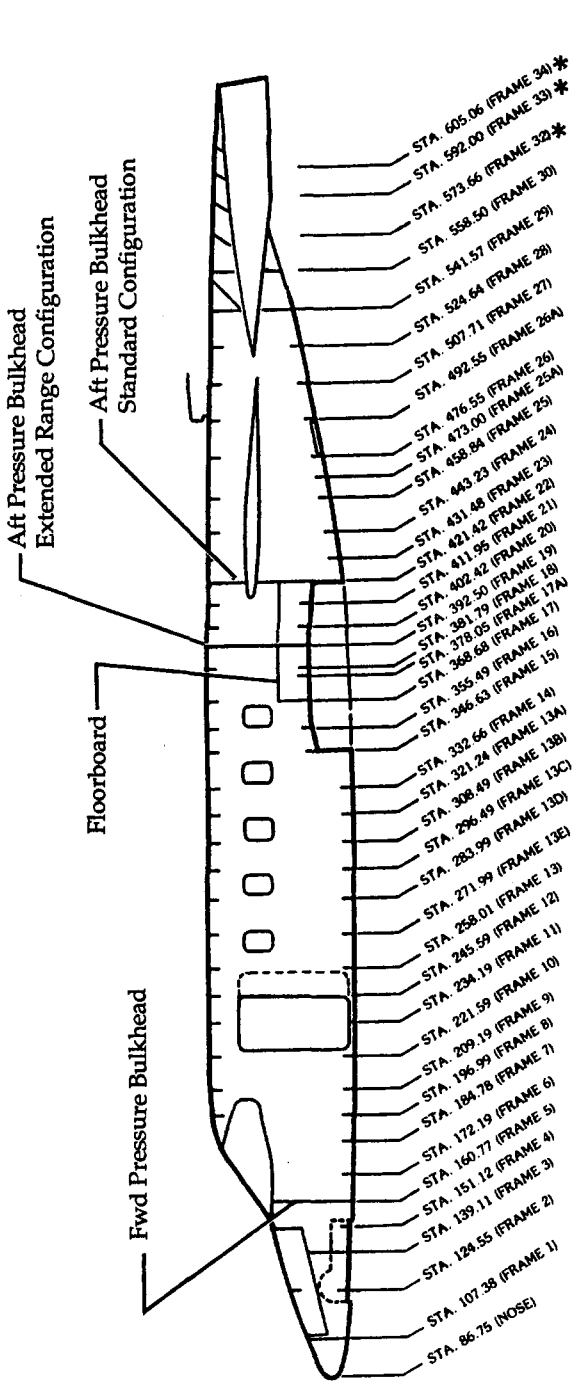
Miscellaneous Areas

Wing (excluding winglets)	264.5 ft.^{2}
Wing (total)	12.0 ft.^{2}
Aileron (per side)	5.854 ft.^{2}
Aileron Trim Tab (LH only)	0.335 ft.^{2}
Aileron Balance Tab (LH & RH)	1.28 ft.^{2}
Flaps (total)	36.85 ft.^{2}
Spoilers (total)	7.0 ft.^{2}
Horizontal Stabilizer (total)	54.0 ft.^{2}
Stabilizer (excluding elevator)	40.4 ft.^{2}
Elevator	13.6 ft.^{2}
Vertical Stabilizer (total)	38.35 ft.^{2}
Vertical Stabilizer (excluding rudder)	31.80 ft.^{2}
Rudder	6.55 ft.^{2}
Rudder Trim Tab	0.69 ft.^{2}
Delta Fins (total)	26.34 ft.^{2}

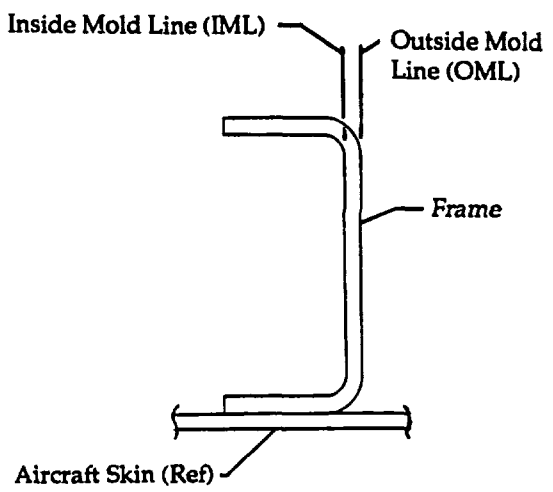
Aircraft Measurement System – Dimensions
Figure 4 (Sheet 3 of 13)



Aircraft Measurement System – Reference Points
Figure 4 (Sheet 4 of 13)

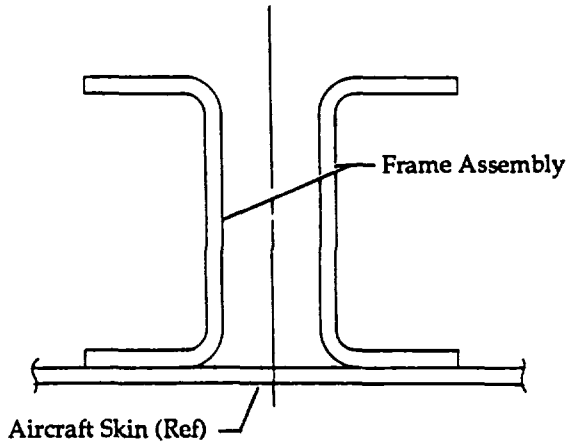


*** Measured at OML of Bulkhead Intersection with Bottom ℄ of fuselage skin.**



(TYPICAL)

(SINGLE FRAME MEMBER CROSS SECTION)

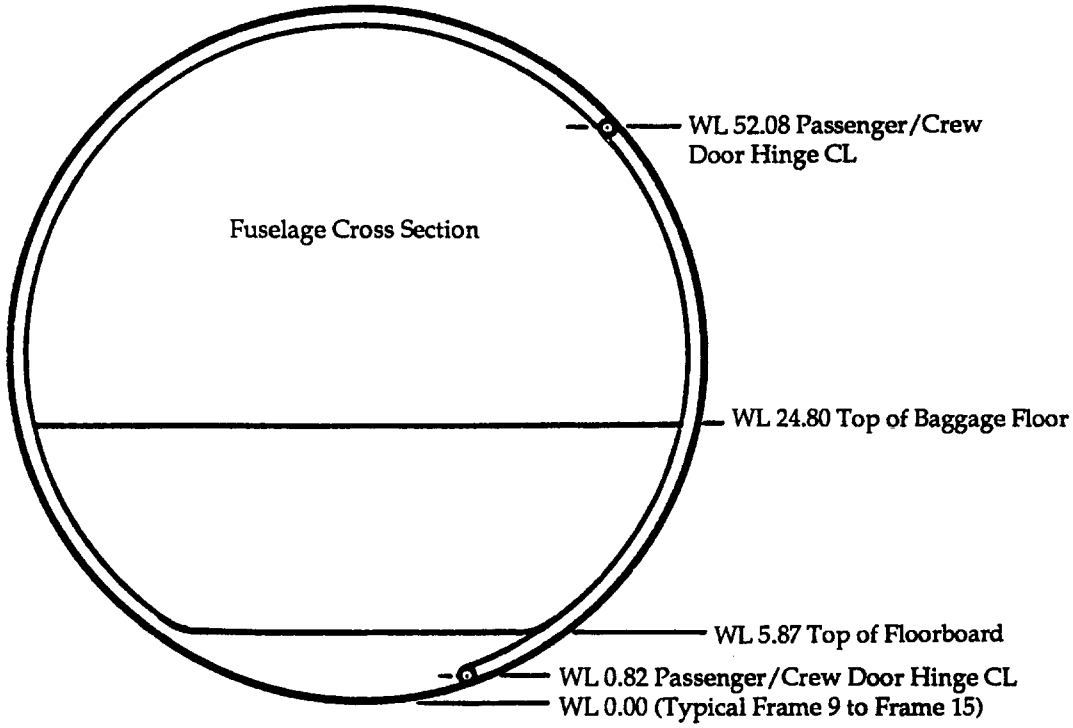


(TYPICAL)

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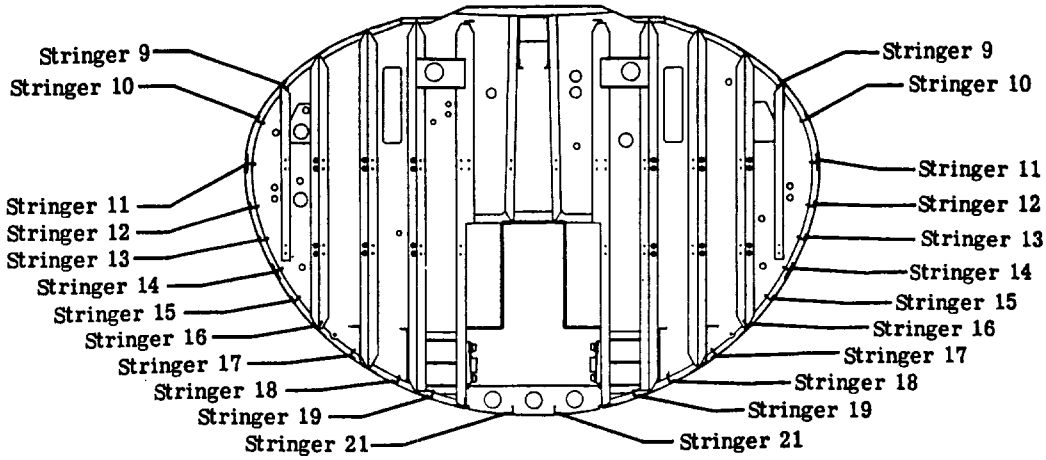
14-77B-1

Aircraft Measurement System – Fuselage Stations
Figure 4 (Sheet 5 of 13)

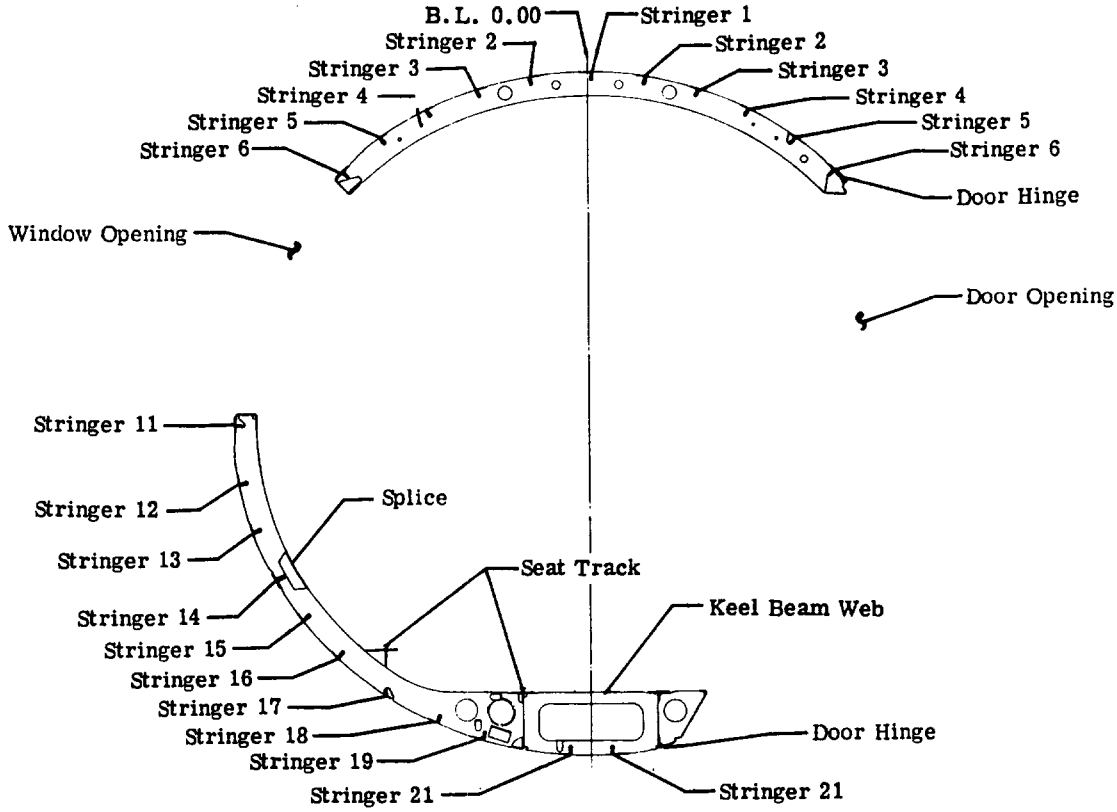


14-131B

Aircraft Measurement System – Fuselage Stations
Figure 4 (Sheet 6 of 13)

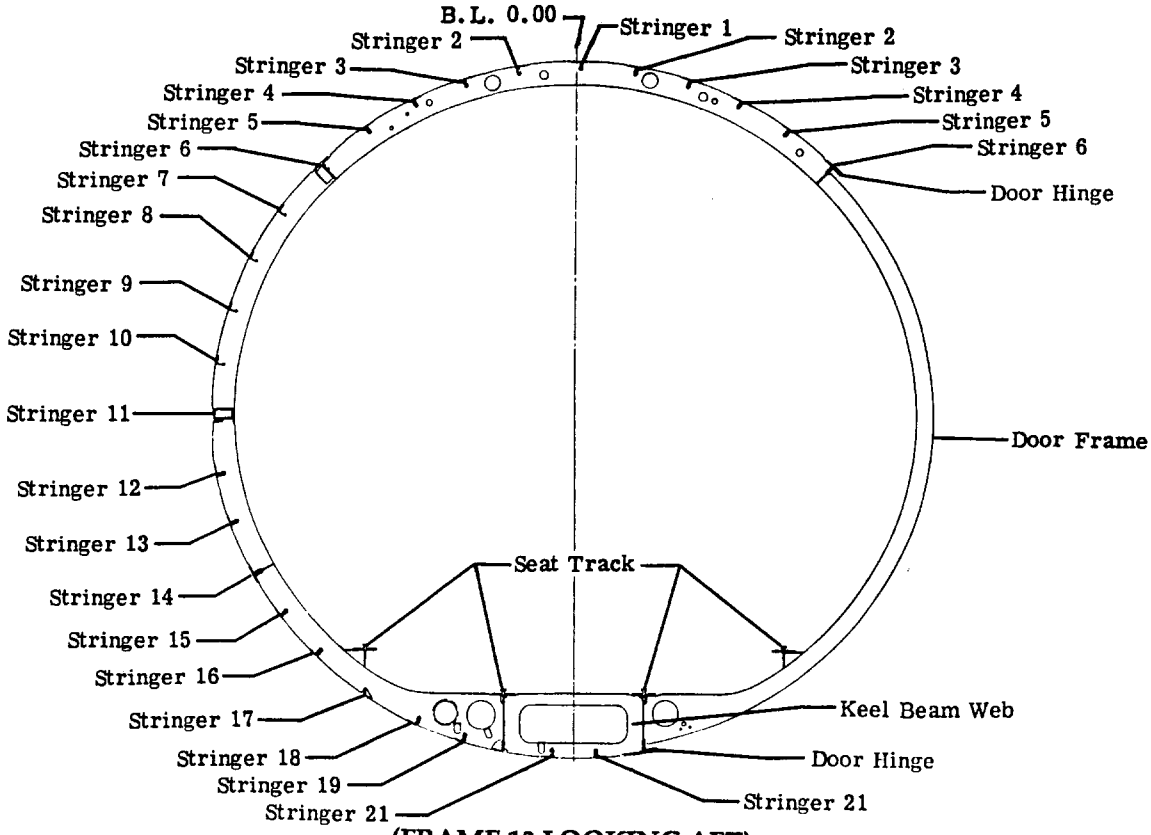


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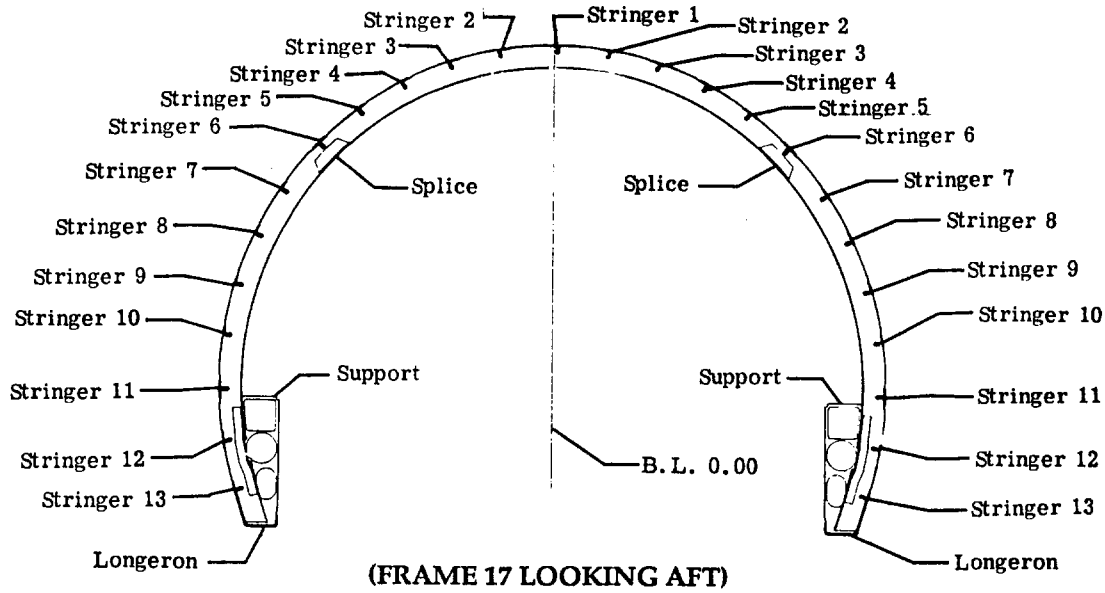


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Aircraft Measurement System – Fuselage Stations
Figure 4 (Sheet 7 of 13)

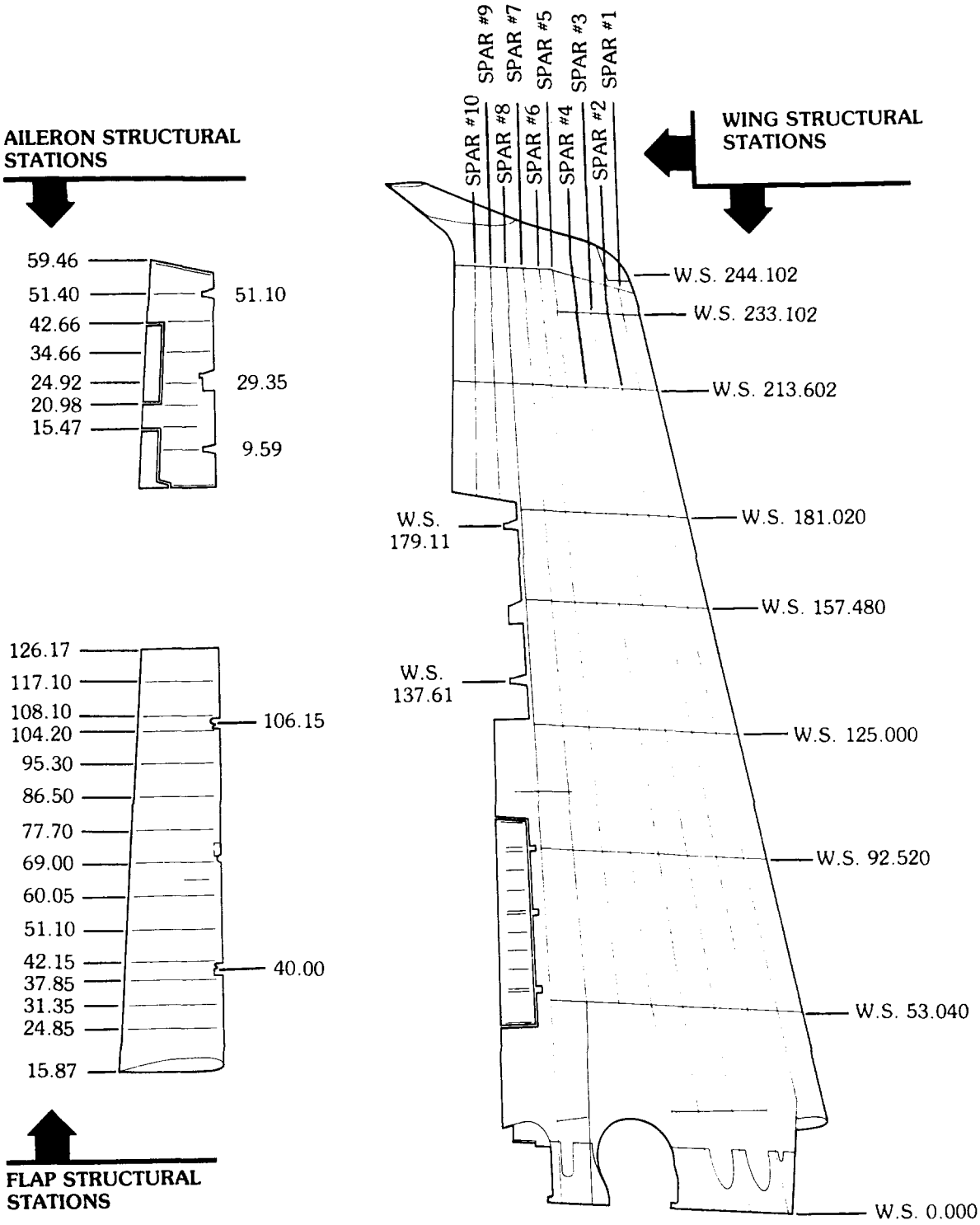


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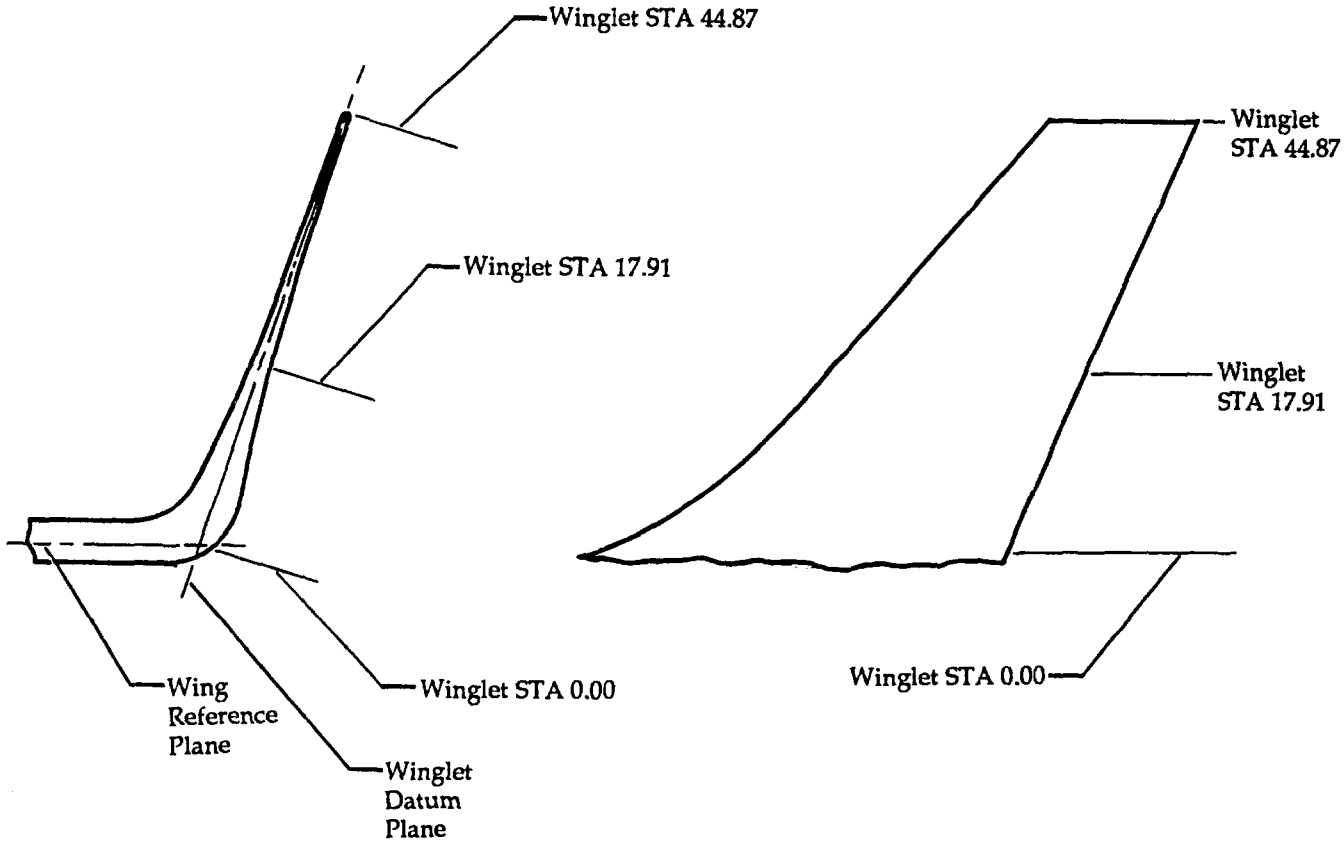


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Aircraft Measurement System – Fuselage Stations
Figure 4 (Sheet 8 of 13)



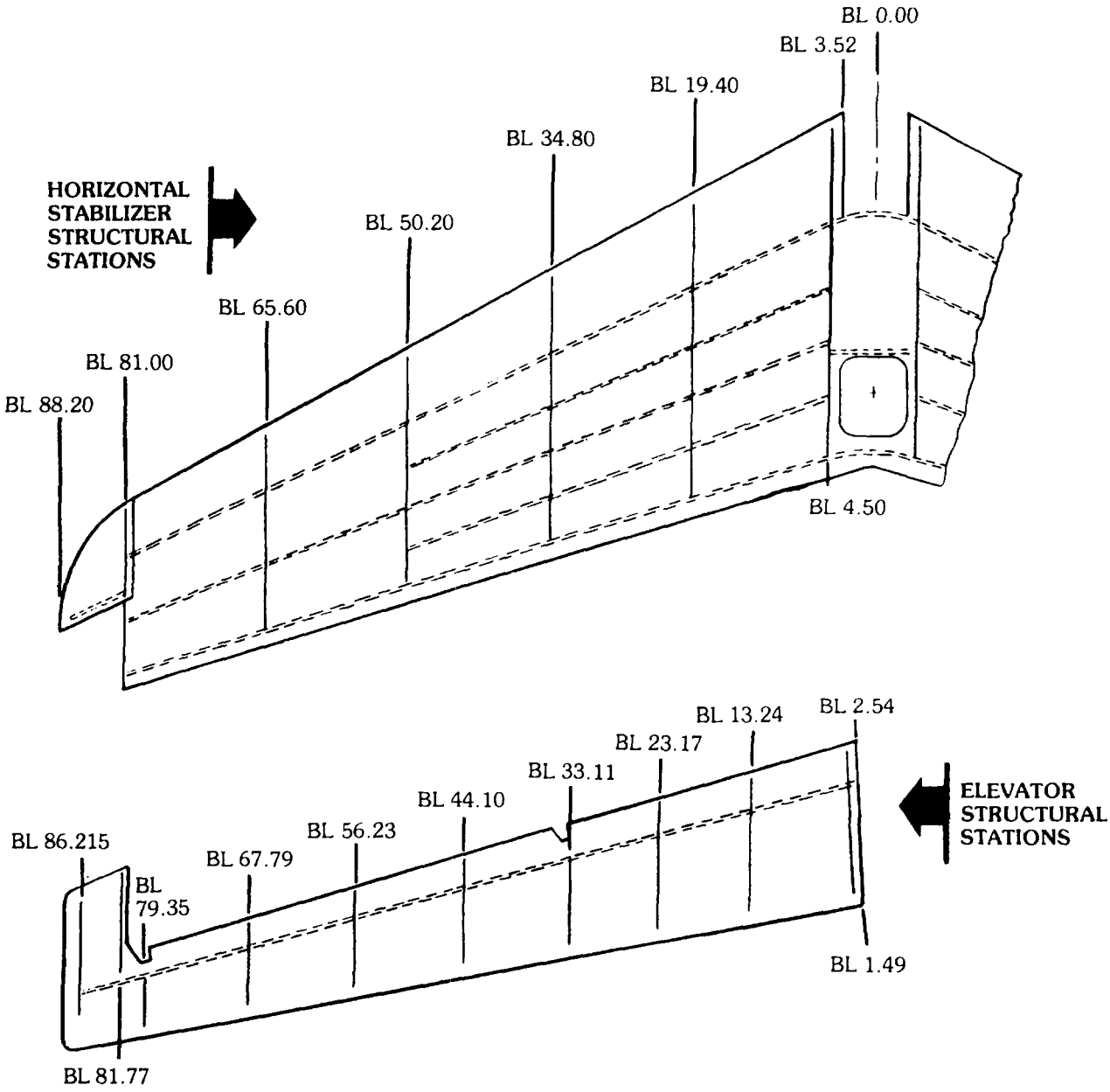
Aircraft Measurement System – Wing, Aileron and Flap Stations
Figure 4 (Sheet 9 of 13)



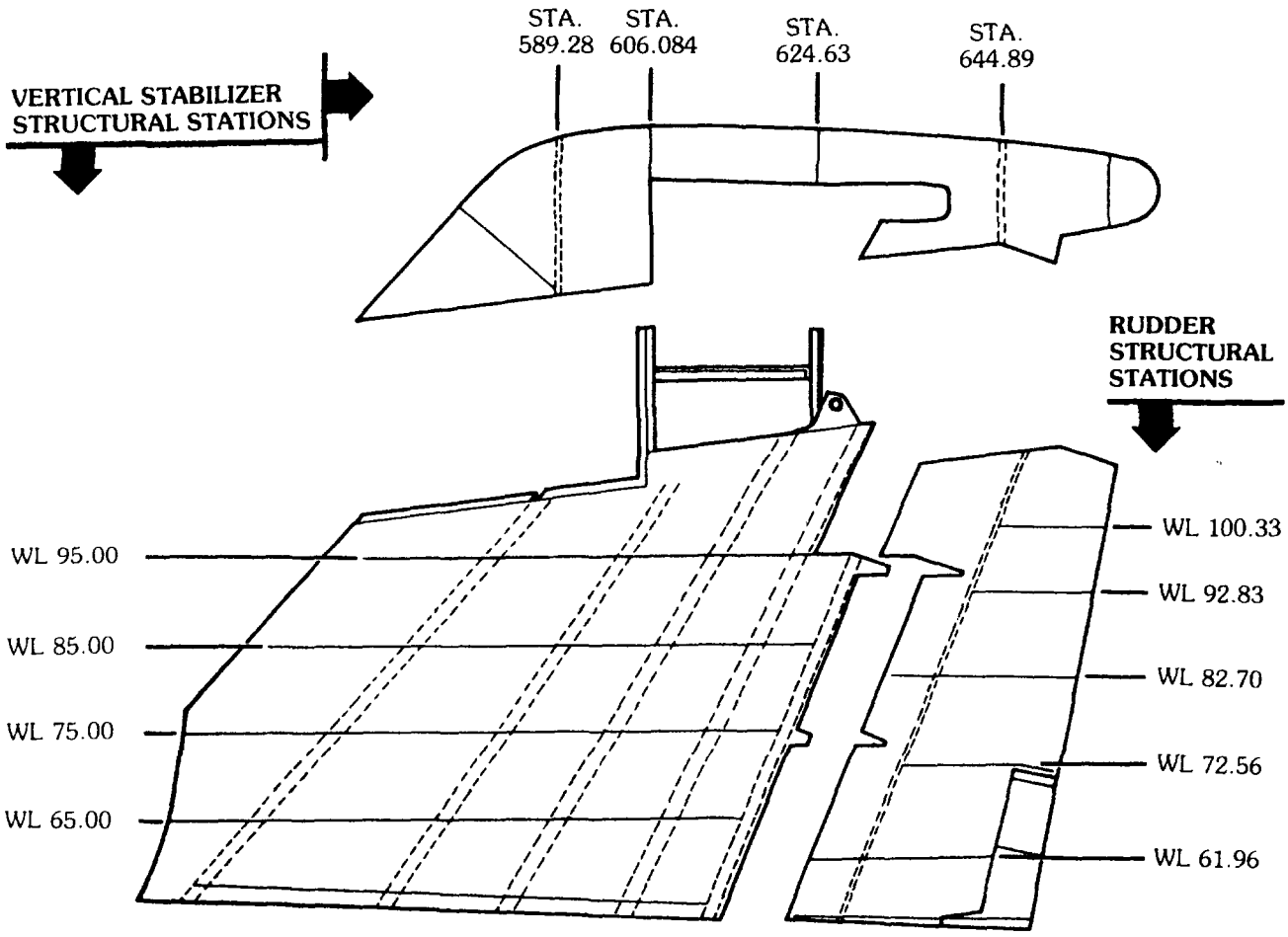
(LH SHOWN, RH TYPICAL)

4-68B

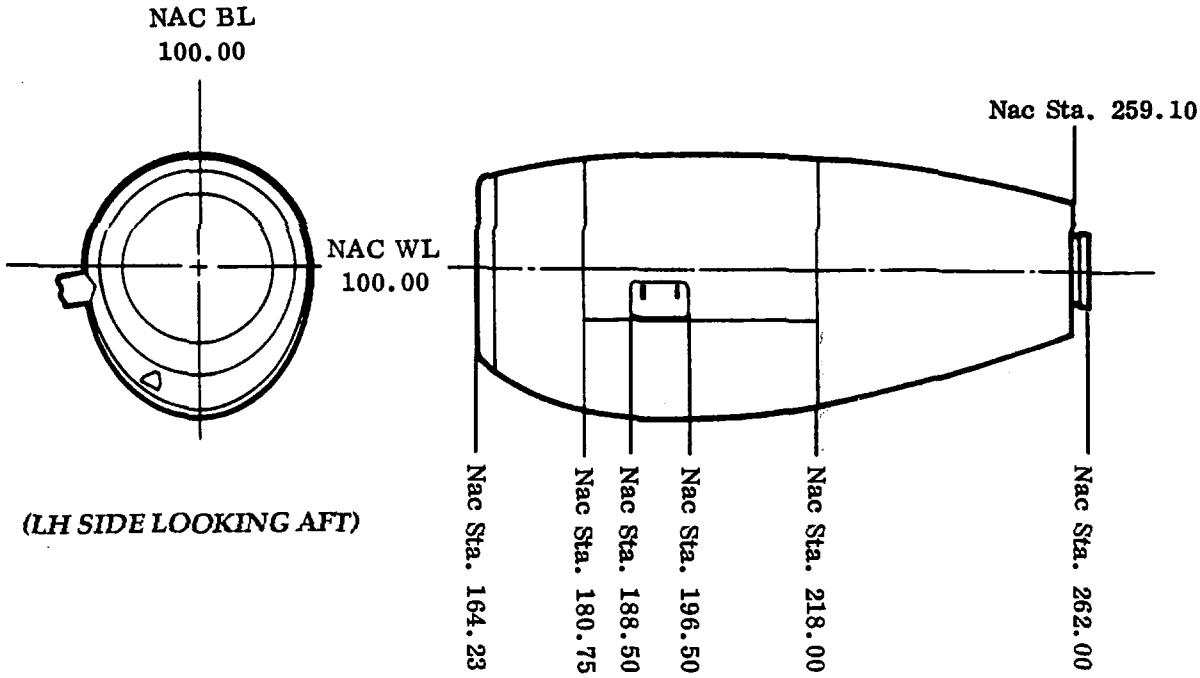
Aircraft Measurement System – Winglet Stations
Figure 4 (Sheet 10 of 13)



Aircraft Measurement System – Horizontal Stabilizer and Elevator Stations
Figure 4 (Sheet 11 of 13)

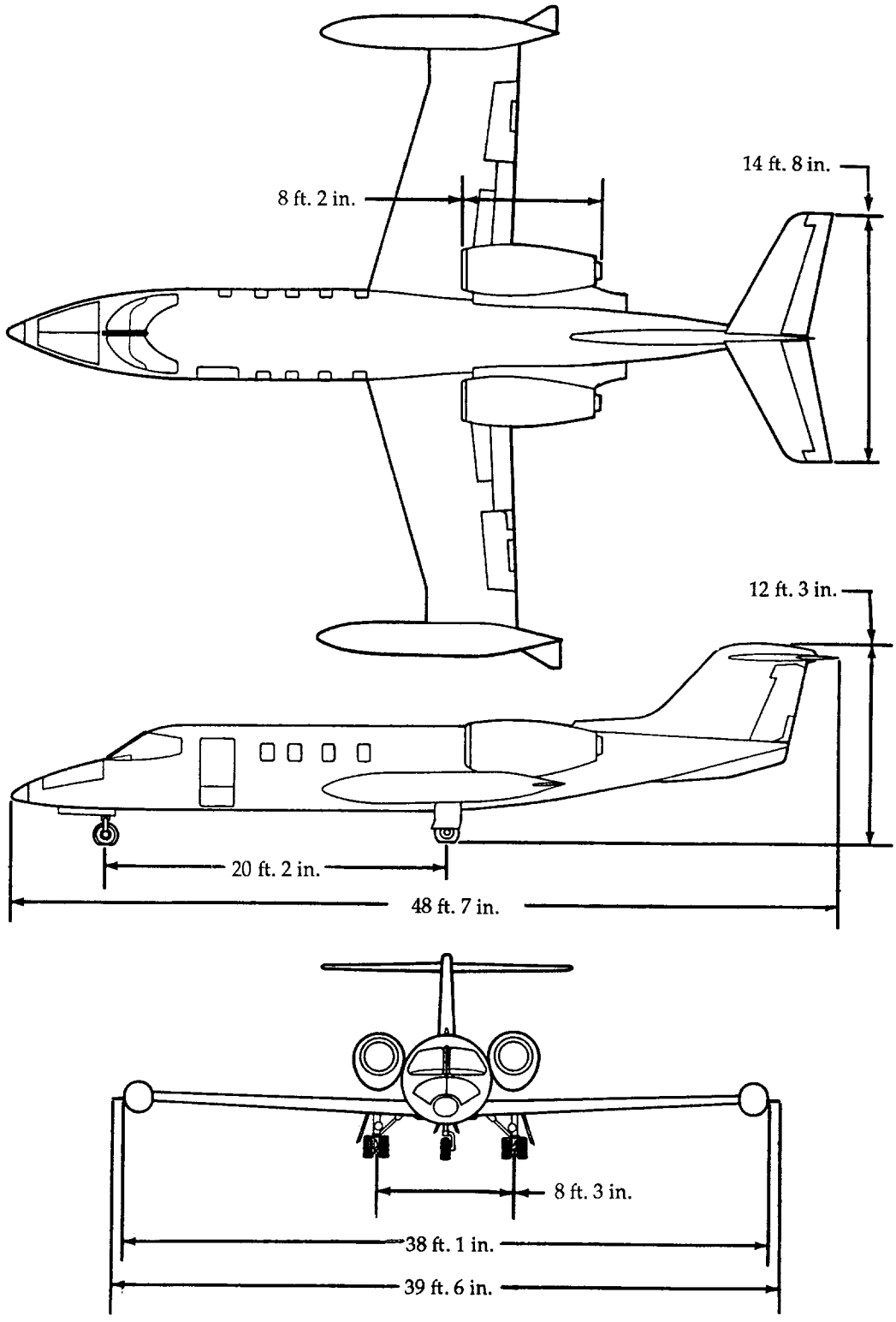


Aircraft Measurement System – Vertical Stabilizer and Rudder Stations
Figure 4 (Sheet 12 of 13)



14-143B-2

Aircraft Measurement System – Nacelle Stations
Figure 4 (Sheet 13 of 13)



Aircraft Measurement System – Dimensions
Figure 5 (Sheet 1 of 13)

Subject	Dimensions
Aircraft	
Span (overall)	39 ft. 7 in.
Span (excluding tip tank fins)	38 ft. 1 in.
Length (overall)	48 ft. 7 in.
Height (overall)	12 ft. 3 in.
Wing	
Root Chord (fuselage centerline)	9 ft. 0 in.
Tip Chord (@ WS 229)	5 ft. 0 in.
Chord (@ WS 181)	5 ft. 1 in.
Dihedral	2° 30'
Sweepback (c/4) Inner panel (WS 0.0 to 181)	13°
Sweepback (c/4) Outer panel (WS 181 to 229)	2°
Incidence	1°
Aileron	
Span (nominal)	4 ft. 9 in.
Root Chord	1 ft. 5 in.
Tip Chord	1 ft. 1 in.
Trim Tab Span (LH only)	1 ft. 9 in.
Balance Tab Span (RH & LH)	1 ft. 9 in.
Flaps	
Type	Single Slotted
Span (nominal)	9 ft. 2 in.
Root Chord	2 ft. 4 in.
Tip Chord	1 ft. 8 in.
Horizontal Stabilizer	
Span	14 ft. 8 in.
Root Chord	5 ft. 0 in.
Tip Chord	2 ft. 4 in.
Sweepback (c/4 chord)	25°
Dihedral	0°
Elevators	
Span (per side)	7 ft. 4 in.
Root Chord	1 ft. 4 in.
Tip Chord	7 in.

Aircraft Measurement System – Dimensions
Figure 5 (Sheet 2 of 13)

Vertical Stabilizer

Span	5 ft. 6 in.
Root Chord	8 ft. 11 in.
Tip Chord	5 ft. 1 in.
Sweepback (c/4)	35° 36'

Fuselage

Fuselage Constant Section

Outside diameter	5 ft. 3 in.
Inside diameter	4 ft. 9 in.
Length of passenger area	11 ft. 4 in.
Height (floor to ceiling)	4 ft. 4 in.

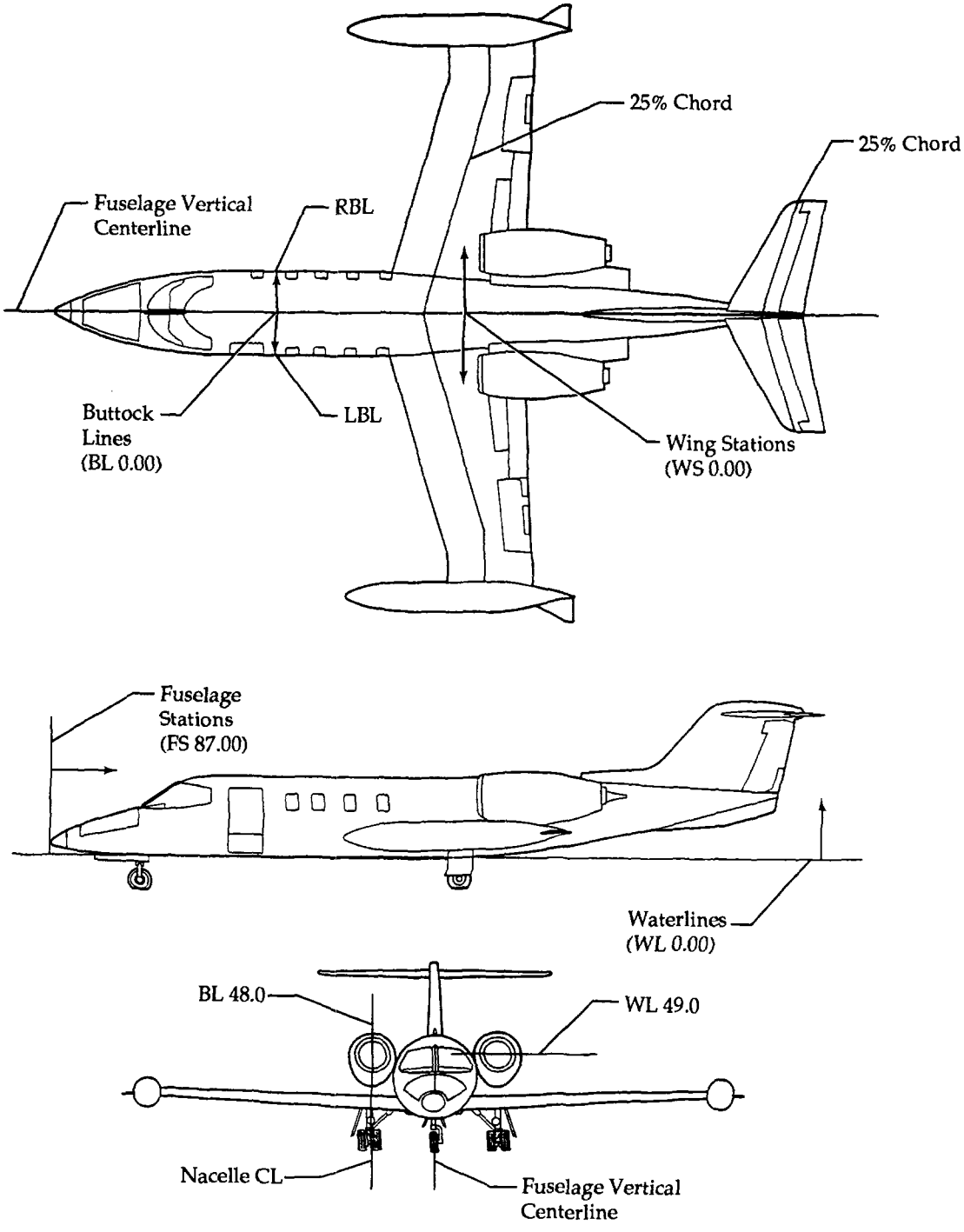
Miscellaneous Areas

Wing

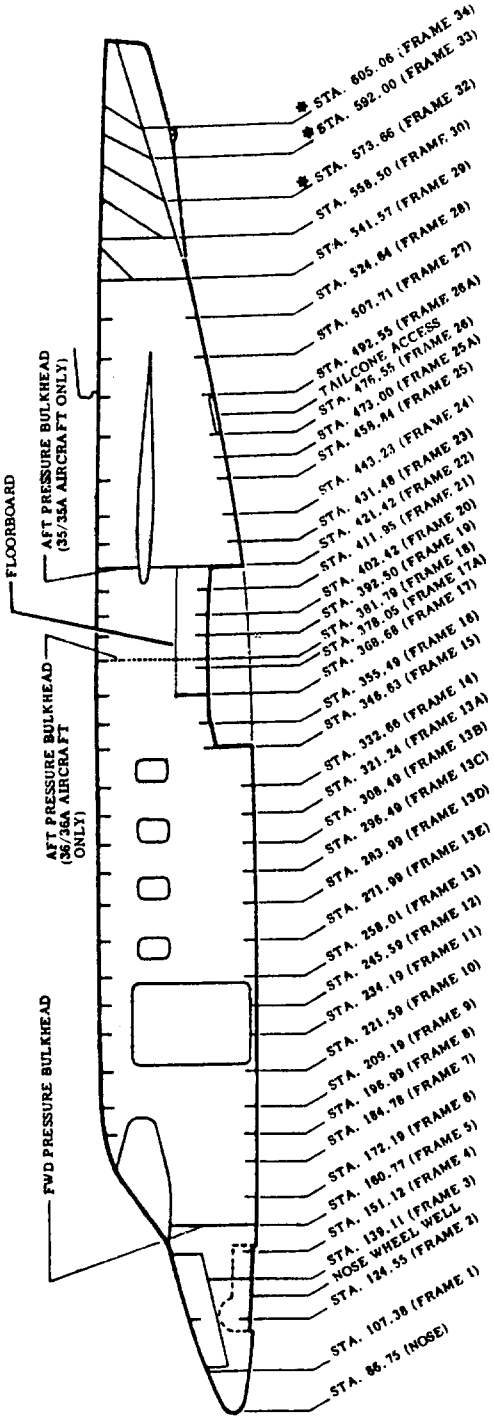
Inner panel (WS 0.0 to WS 181)	212.9 ft.^{2}
Outer panel (WS 181 to WS 229)	40.4 ft.^{2}
Total reference area	253.3 ft.^{2}

Aileron (per side)	5.854 ft.^{2}
Aileron Trim Tab (LH only)	0.335 ft.^{2}
Aileron Balance Tab (LH & RH)	1.28 ft.^{2}
Flaps (total)	36.85 ft.^{2}
Spoilers (total)	7.0 ft.^{2}
Horizontal Stabilizer (total)	54.0 ft.^{2}
Stabilizer (excluding elevator)	40.4 ft.^{2}
Elevator	14.13 ft.^{2}
Vertical Stabilizer (total)	38.35 ft.^{2}
Vertical Stabilizer (excluding rudder)	31.80 ft.^{2}
Rudder	6.55 ft.^{2}
Rudder Trim Tab	0.69 ft.^{2}

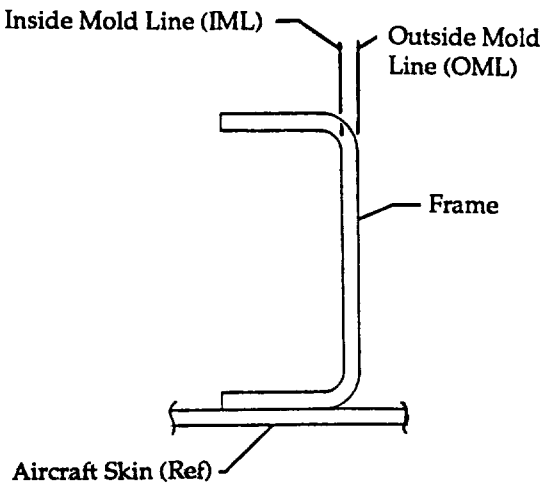
Aircraft Measurement System – Dimensions
Figure 5 (Sheet 3 of 13)



Aircraft Measurement System – Reference Points
Figure 5 (Sheet 4 of 13)

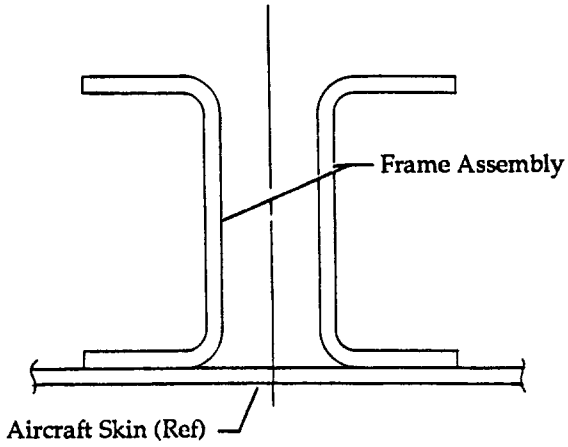


* Measured at OML of Bulkhead Intersection with Bottom $\mathbb{C}_L$ of fuselage skin.



(TYPICAL)

(SINGLE FRAME MEMBER CROSS SECTION)

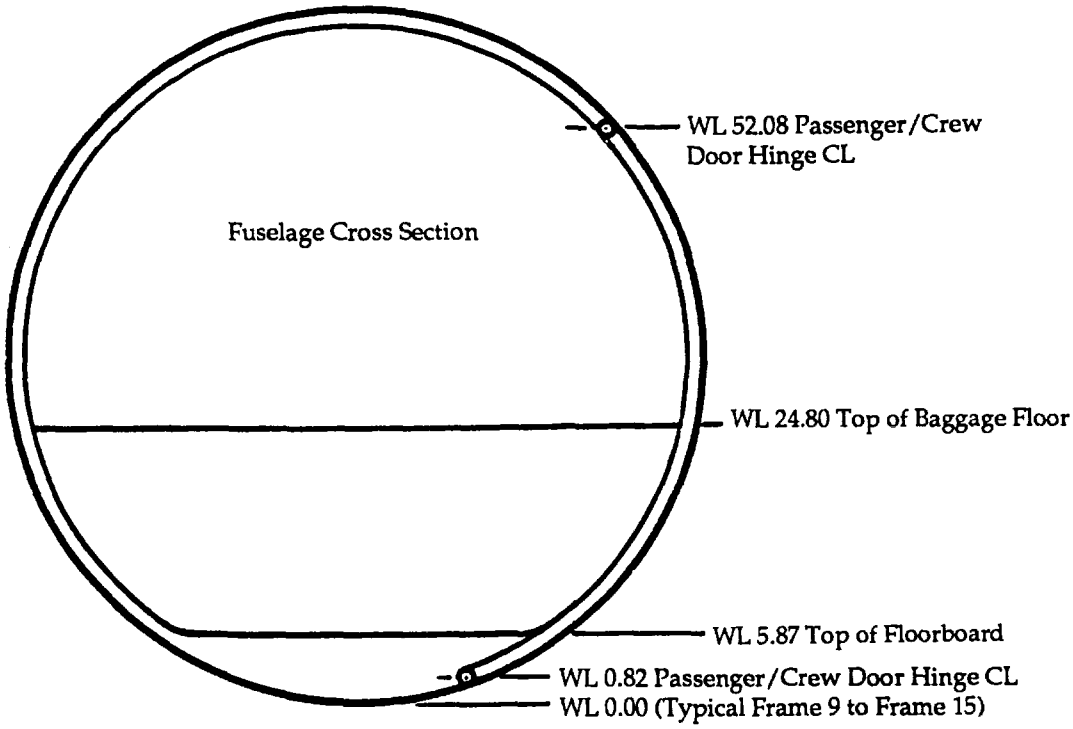


(TYPICAL)

(DOUBLE FRAME MEMBER CROSS SECTION)

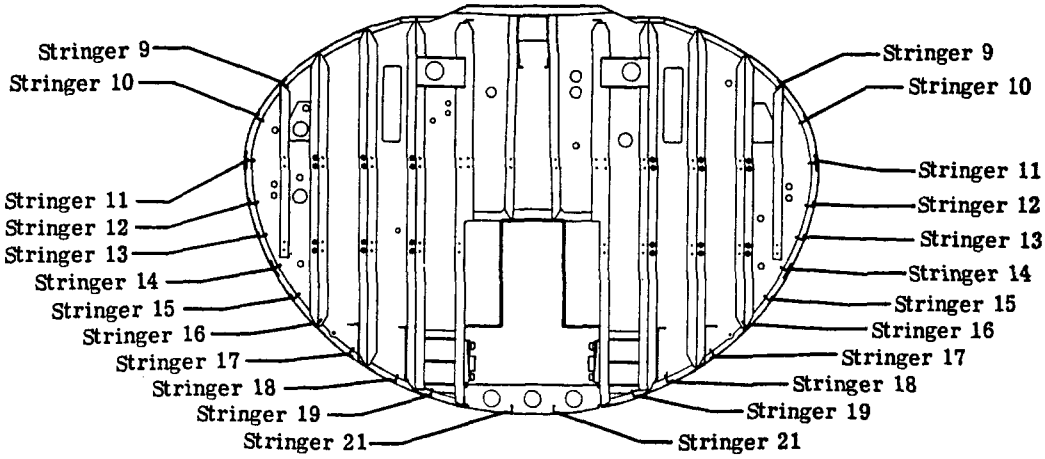
14-77B-1

Aircraft Measurement System – Fuselage Stations
Figure 5 (Sheet 5 of 13)

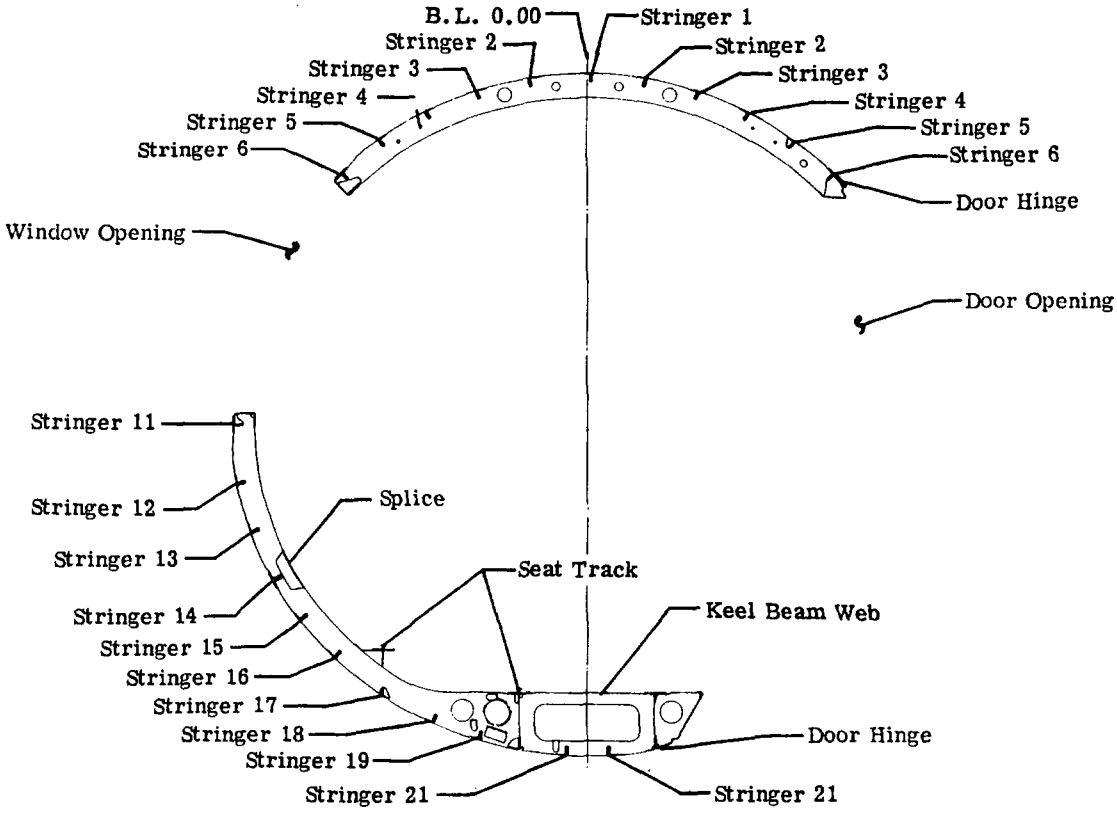


14-131B

Aircraft Measurement System – Fuselage Stations
Figure 5 (Sheet 6 of 13)

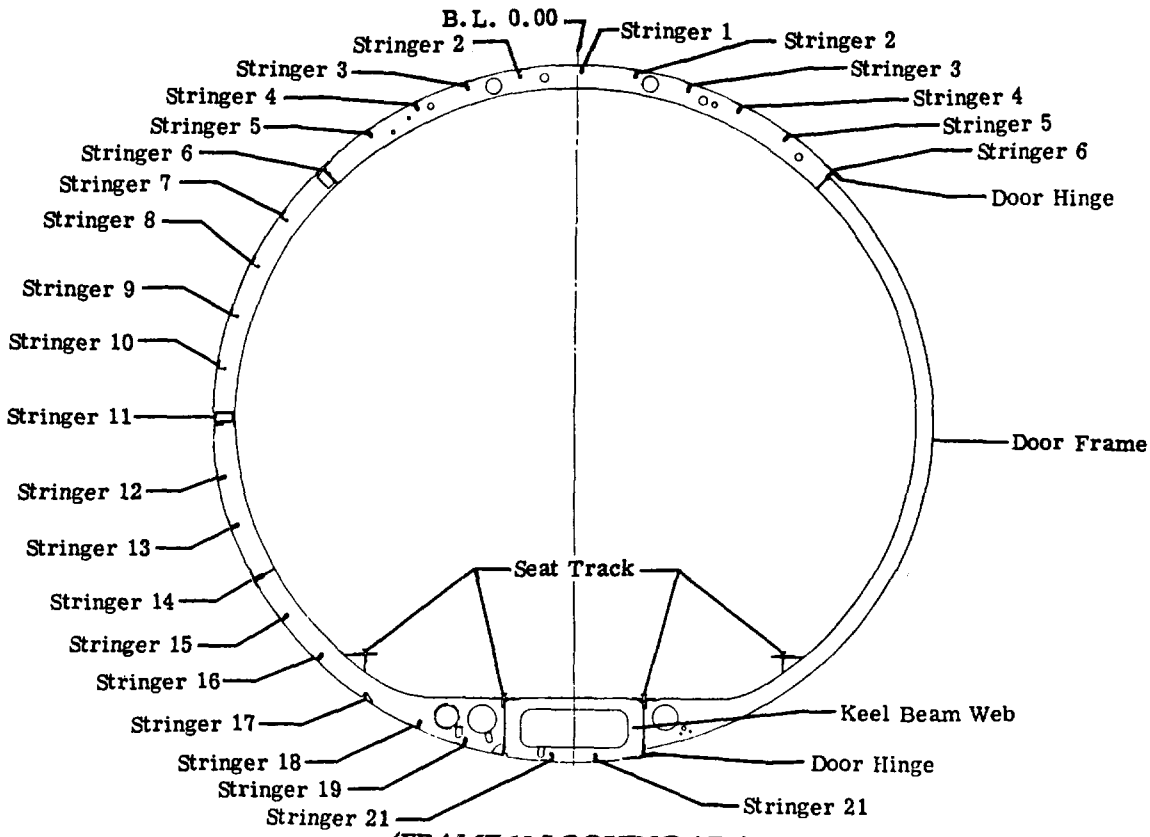


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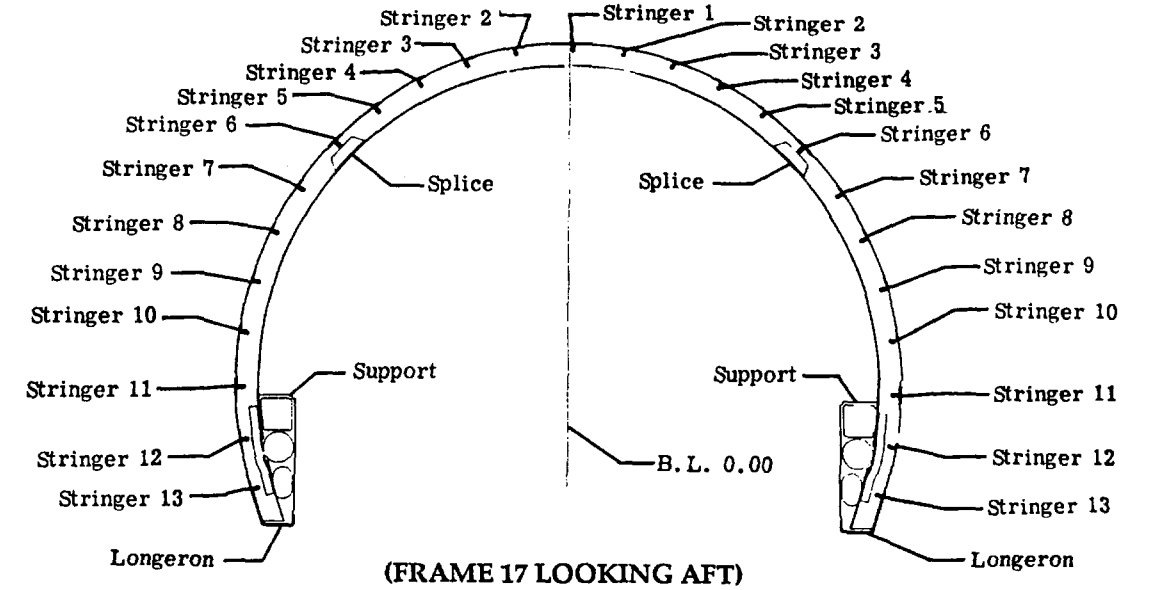


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Aircraft Measurement System – Fuselage Stations
Figure 5 (Sheet 7 of 13)

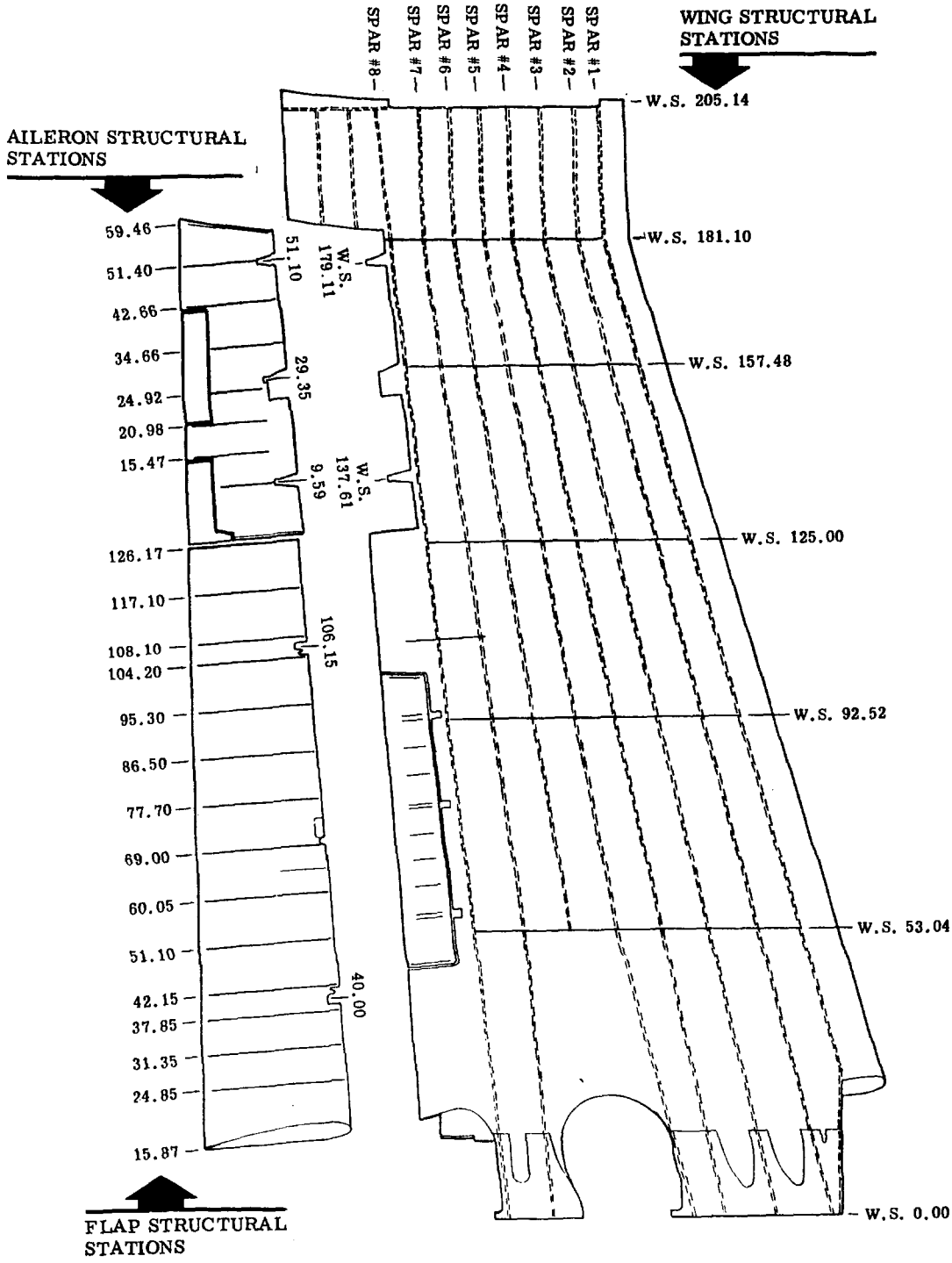


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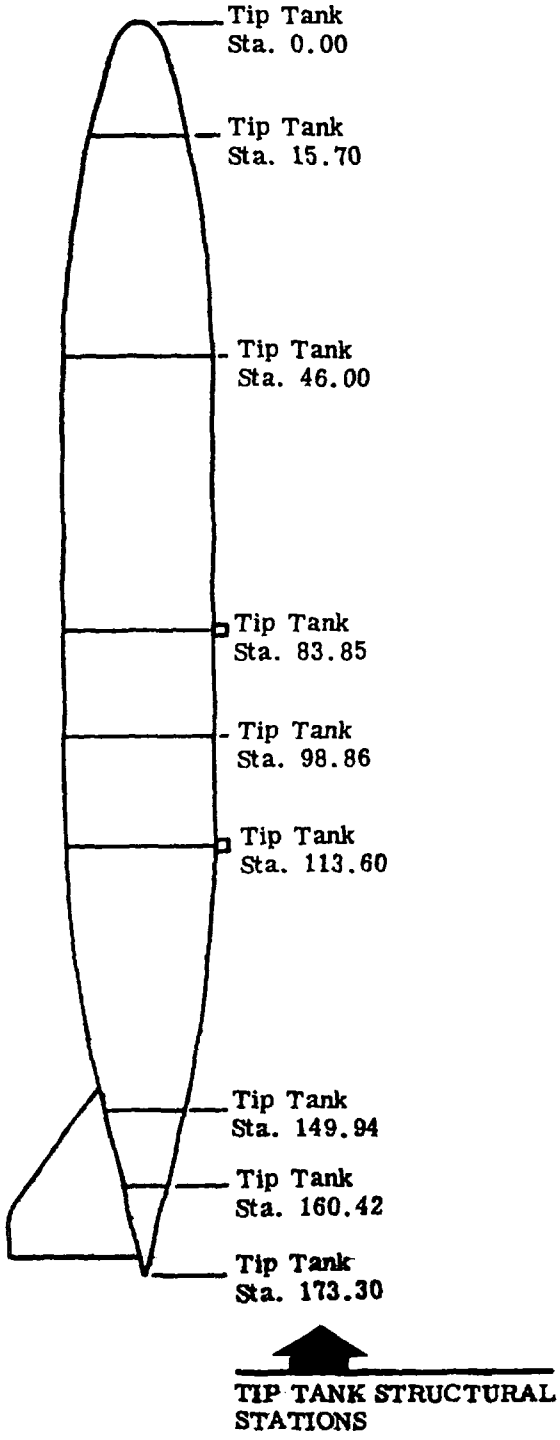


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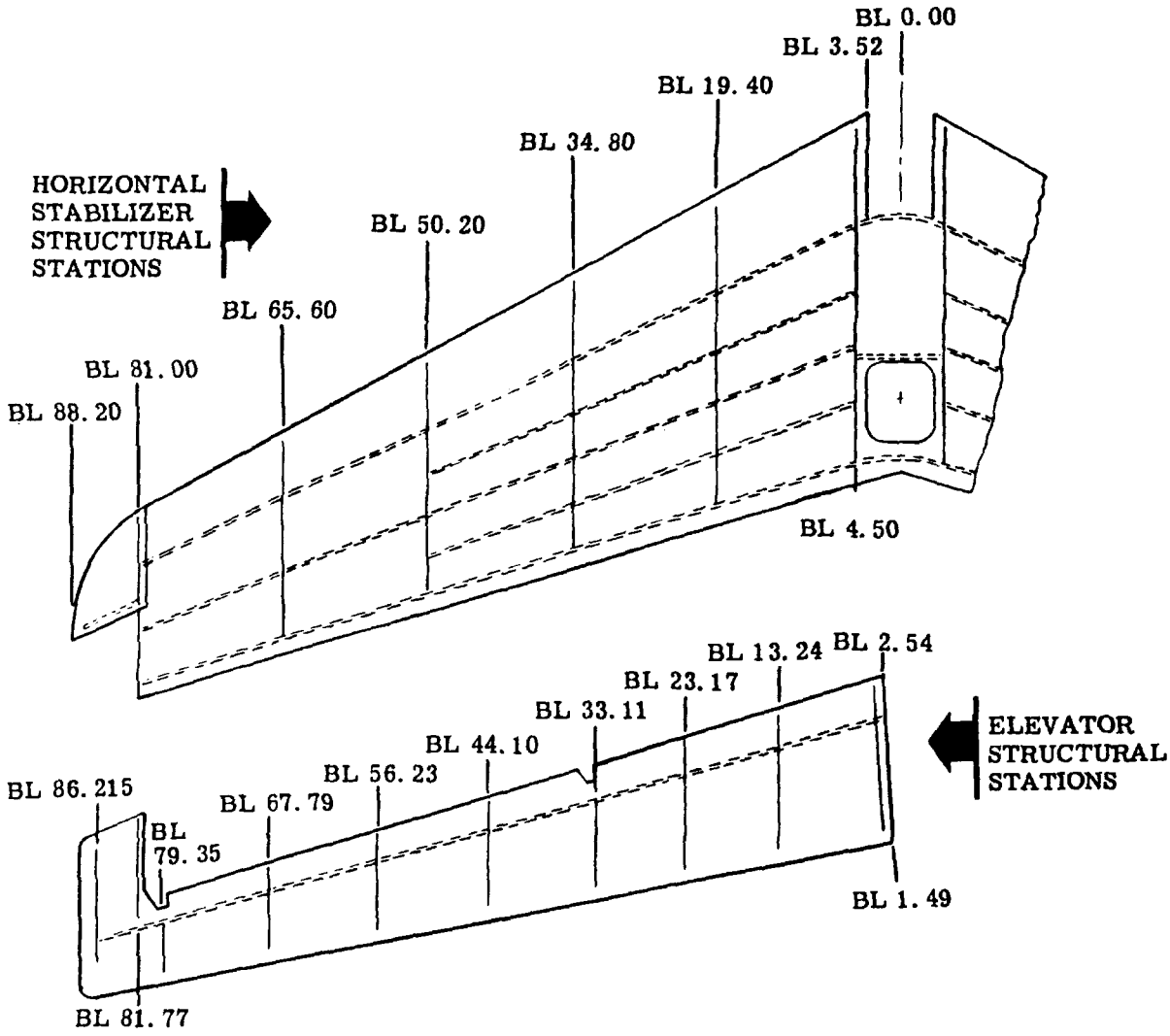
Aircraft Measurement System – Fuselage Stations
Figure 5 (Sheet 8 of 13)



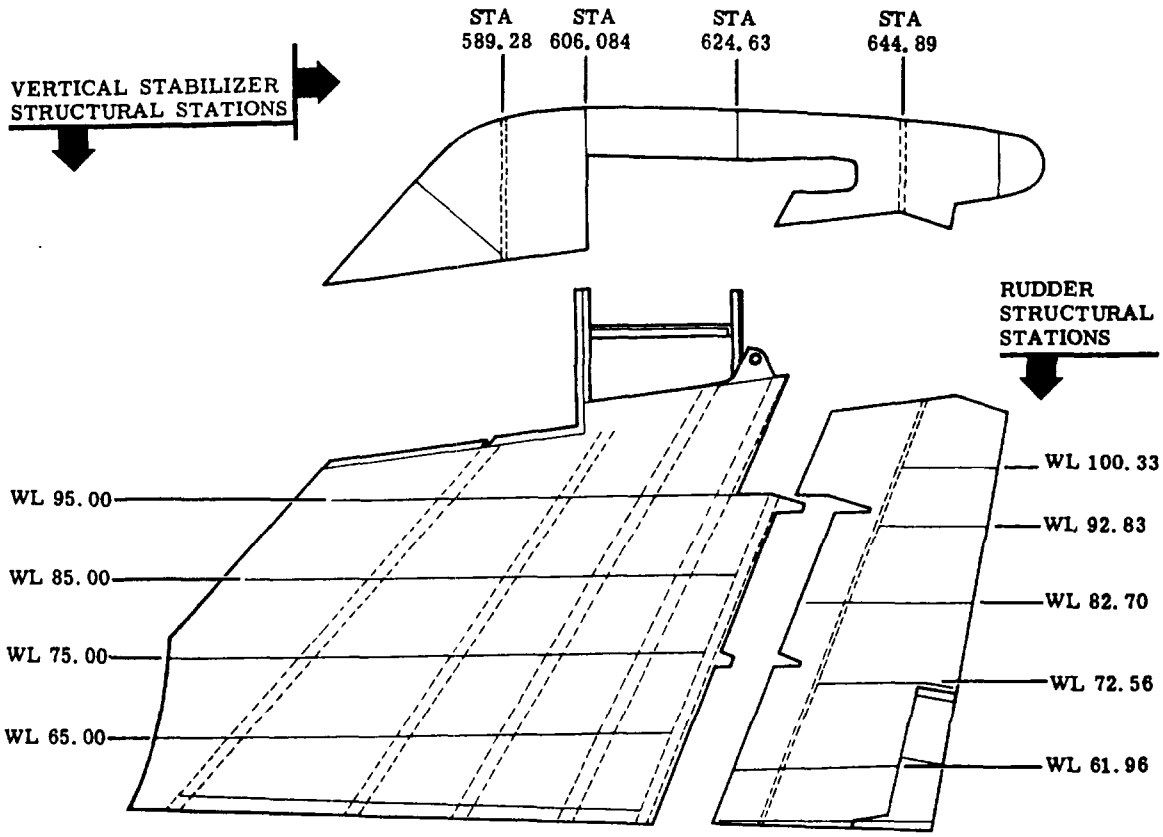
Aircraft Measurement System – Wing, Aileron and Flap Stations
Figure 5 (Sheet 9 of 13)



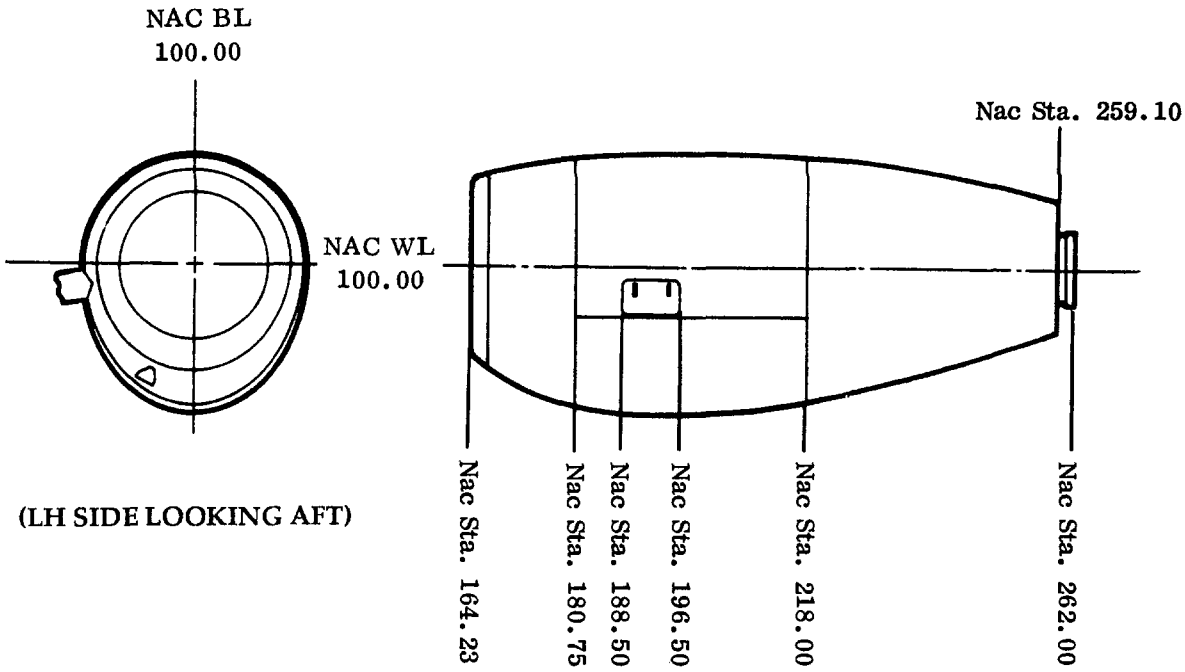
Aircraft Measurement System – Tip Tank Stations
Figure 5 (Sheet 10 of 13)



Aircraft Measurement System – Horizontal Stabilizer and Elevator Stations
Figure 5 (Sheet 11 of 13)



Aircraft Measurement System – Vertical Stabilizer and Rudder Stations
Figure 5 (Sheet 12 of 13)

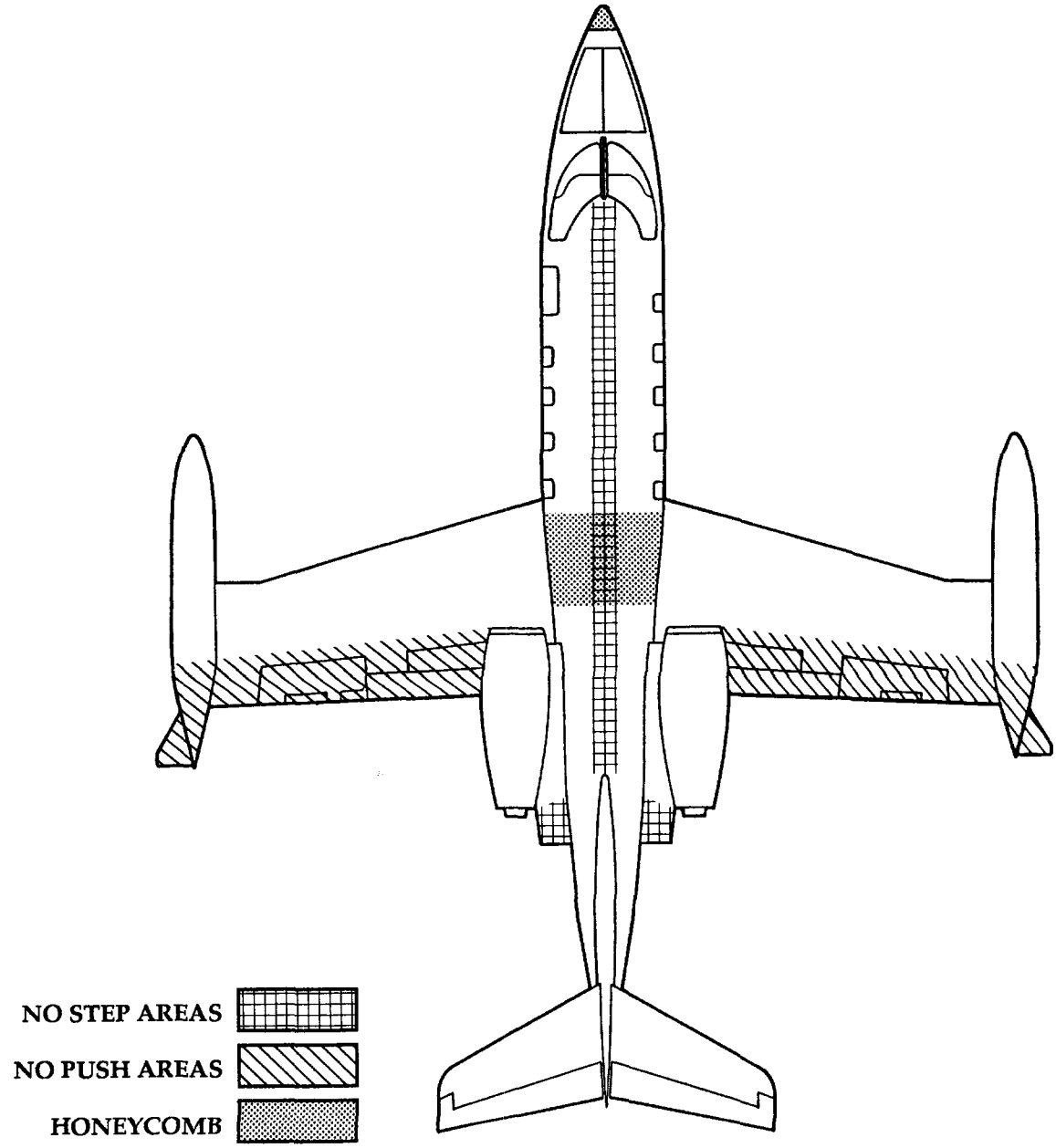


14-143B-2

Aircraft Measurement System – Nacelle Stations
Figure 5 (Sheet 13 of 13)

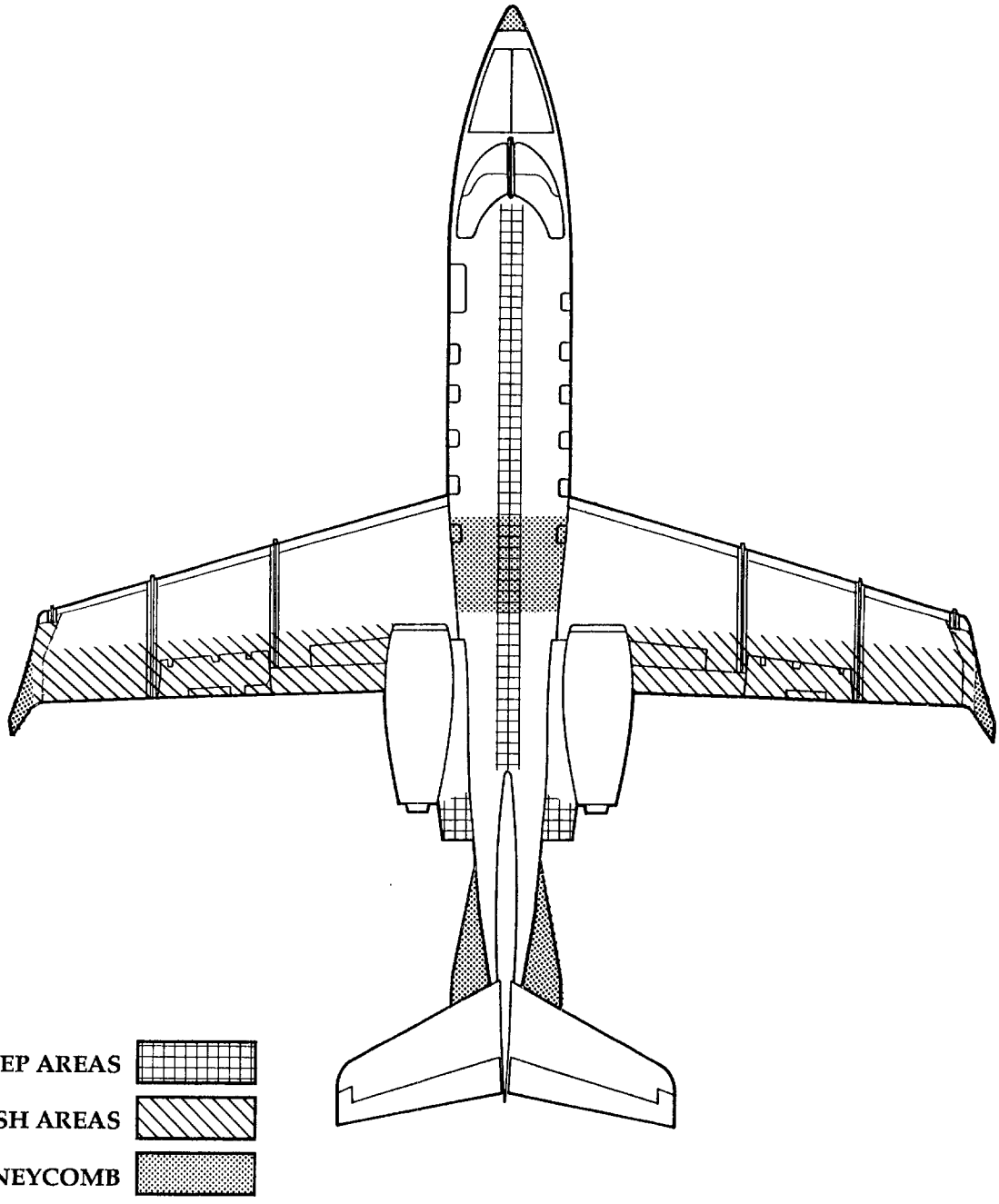
RESTRICTED AREAS - STRUCTURAL IDENTIFICATION

1. RESTRICTED AREAS DESCRIPTION
   A. See Figure 1 for restricted area locations.



Repro

Restricted Area Diagram
Figure 1 (Sheet 1 of 2)



(TYPICAL)

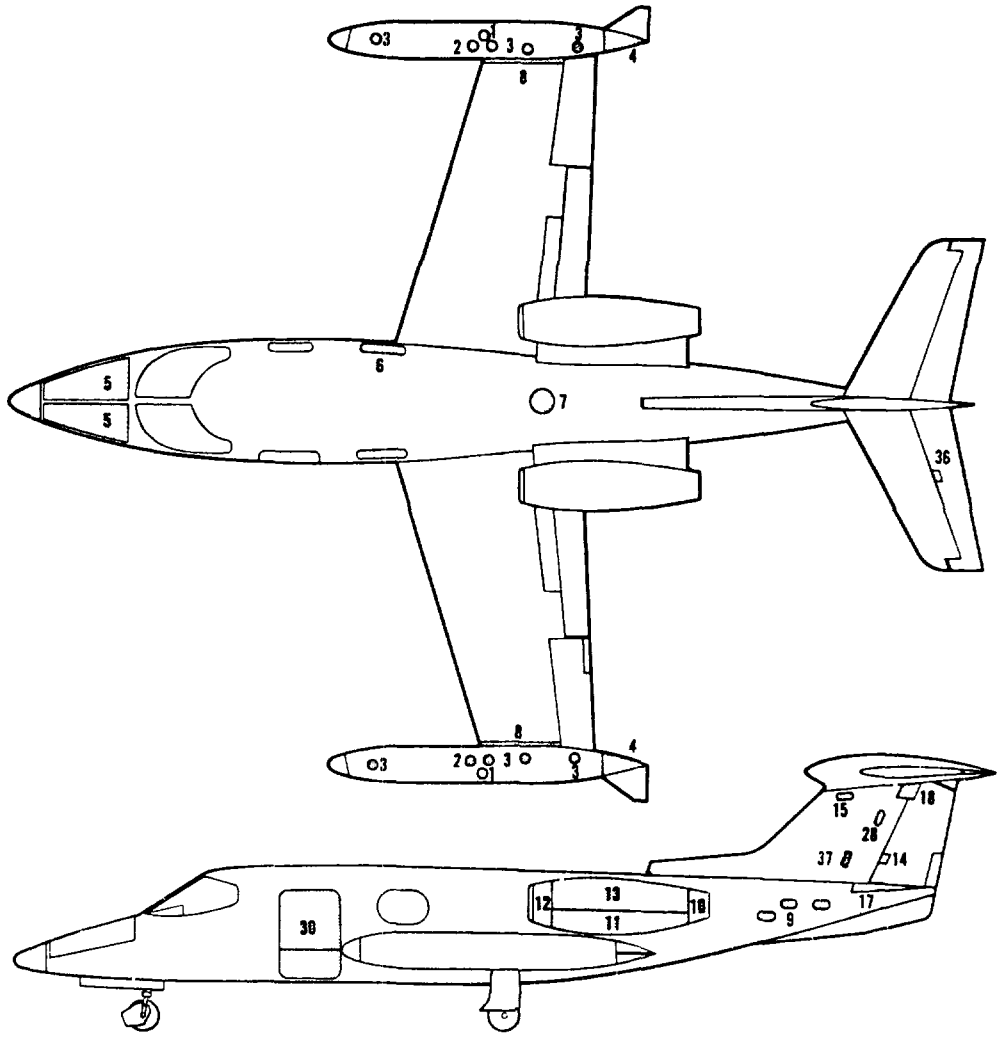
Repro

Restricted Area Diagram
Figure 1 (Sheet 2 of 2)

ACCESS DOORS AND PANELS - STRUCTURAL IDENTIFICATION

1. ACCESS DOORS AND PANELS DESCRIPTION

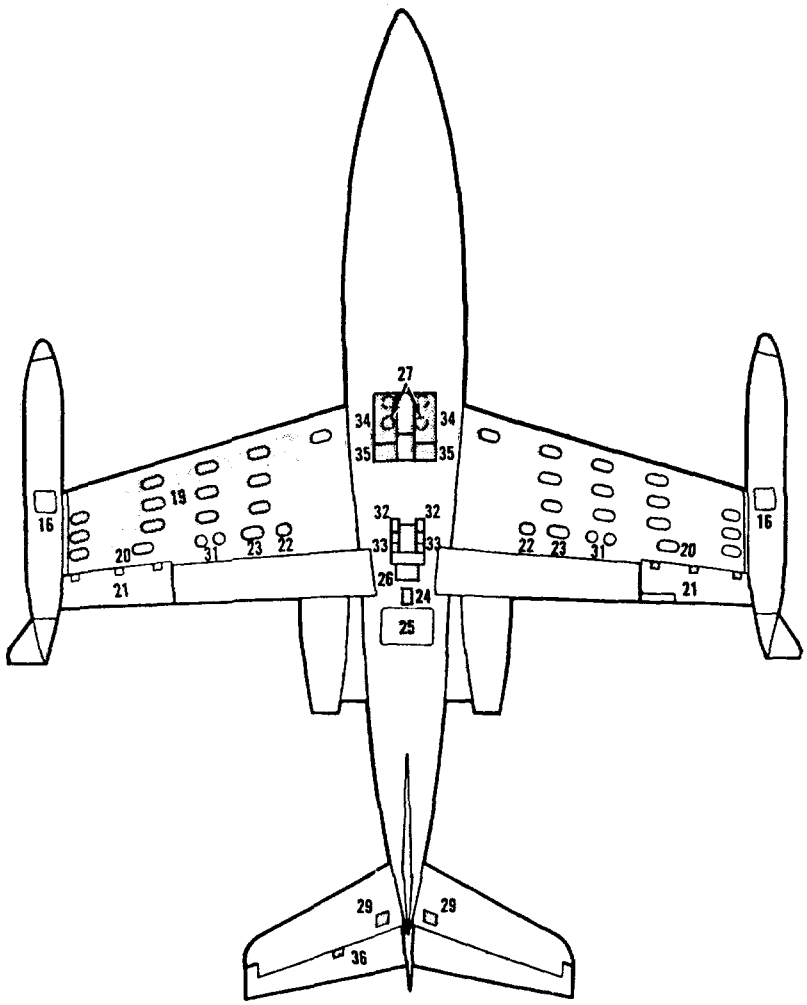
A. See Figure 1 for access doors and panels locations.



1. Fuel Filler
2. Fuel Probe
3. Tip Tank Access
4. Directisyn Flux Valve
5. Electronic Equipment, Oxygen and Air Bottles
6. Emergency Exit Window
7. Fuselage Fuel Tank Probe
8. Wing Tip Fuel and Electrical Connections
9. Vertical Stabilizer Attach Points and Controls (LH Side Only)
10. Nacelle Tailcone
11. Nacelle Bottom Section
12. Nacelle Nose Cap
13. Nacelle Top Section
14. Rudder Hinge and Rudder Tab Actuator
15. Stabilizer Actuator
16. Tip Tank Fuel Pump

(TYPICAL)

Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 1 (Sheet 1 of 3)

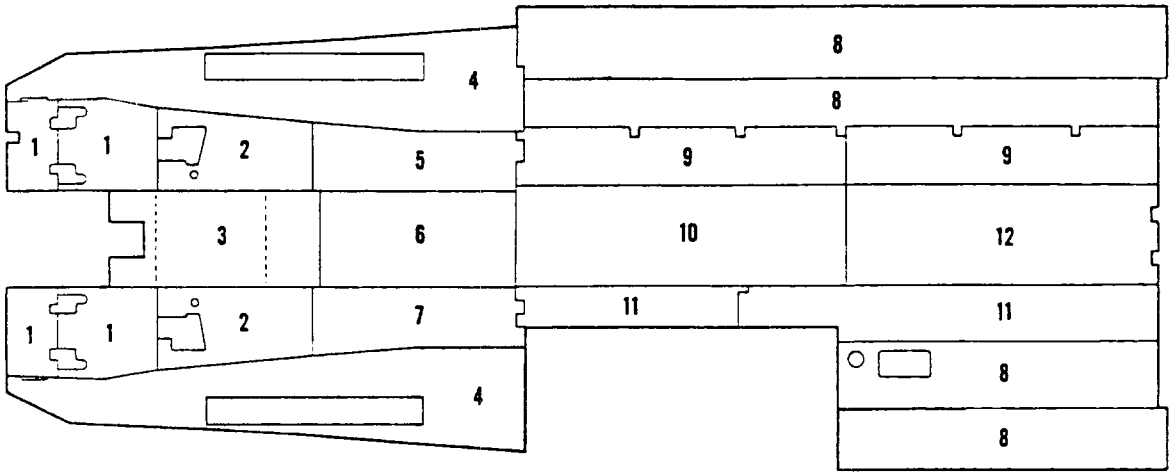


17. Rudder Attach Points
18. Rudder Hinge and Balance Weights
19. Wing Fuel Tank (Typical Both Wings)
20. Aileron controls
21. Aileron Actuator and Hinges
22. Fuel Vent Lines
23. Wing Flap Bellcrank and Spoiler Actuator
24. Cables and Pulleys
25. Batteries, Electrical Components, Fuel Filters, Refrigeration and Hydraulic Components
26. Fuel Lines and Sump Drains
27. Wing Tank Fuel Pumps
28. Elevator Controls (LH Side Only)
29. Horizontal Stabilizer Attachment
30. Cabin Door
31. Fuel Vent Lines
32. Fuel Shutoff Valves
33. Pulleys and Fuel Lines
34. Hydraulic Lines and Wing Fuel Tanks
35. Fuel Lines and Drain
36. Elevator Hinge
37. Pitch Axis Servo Access (Optional)

(TYPICAL)

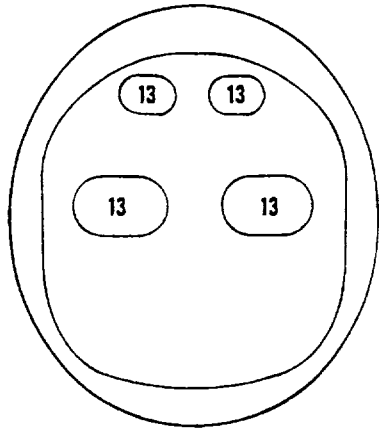
14-109C

Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 1 (Sheet 2 of 3)



FLOORBOARDS AND INNER SKIN

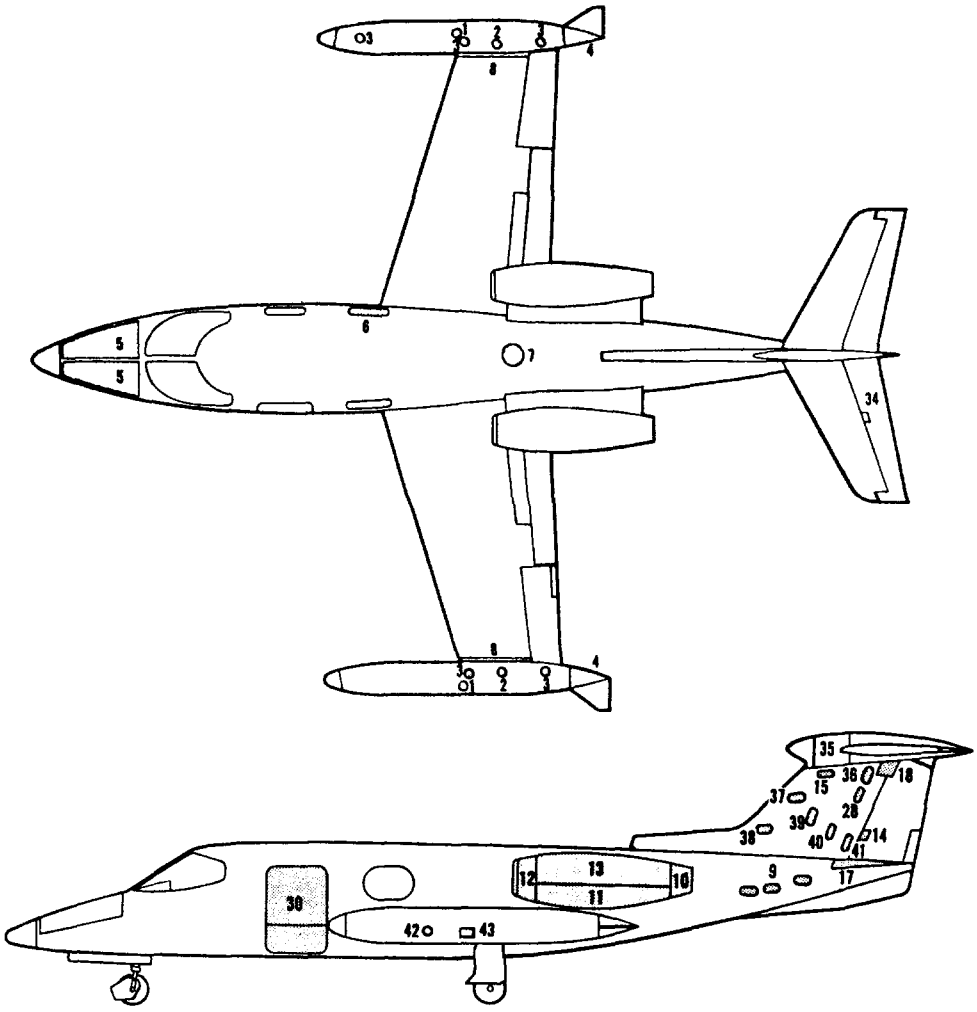
1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Controls Sector
4. Hydraulic Lines - Inner Skin
5. Brake System Shuttle Valves
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Control Valve
8. Cabin Air Distribution Ducts - Inner Skin
9. Hydraulic Lines
10. Control Cables, Pulleys and Aileron-Rudder Interconnect
11. Hydraulic Lines, Emergency Air Lines and Refrigerant Line
12. Control Cables, Pulleys and Anti-Collision Beacon
13. Fuselage Fuel Cell



(VIEW LOOKING FORWARD)
FRAME 24

(TYPICAL)

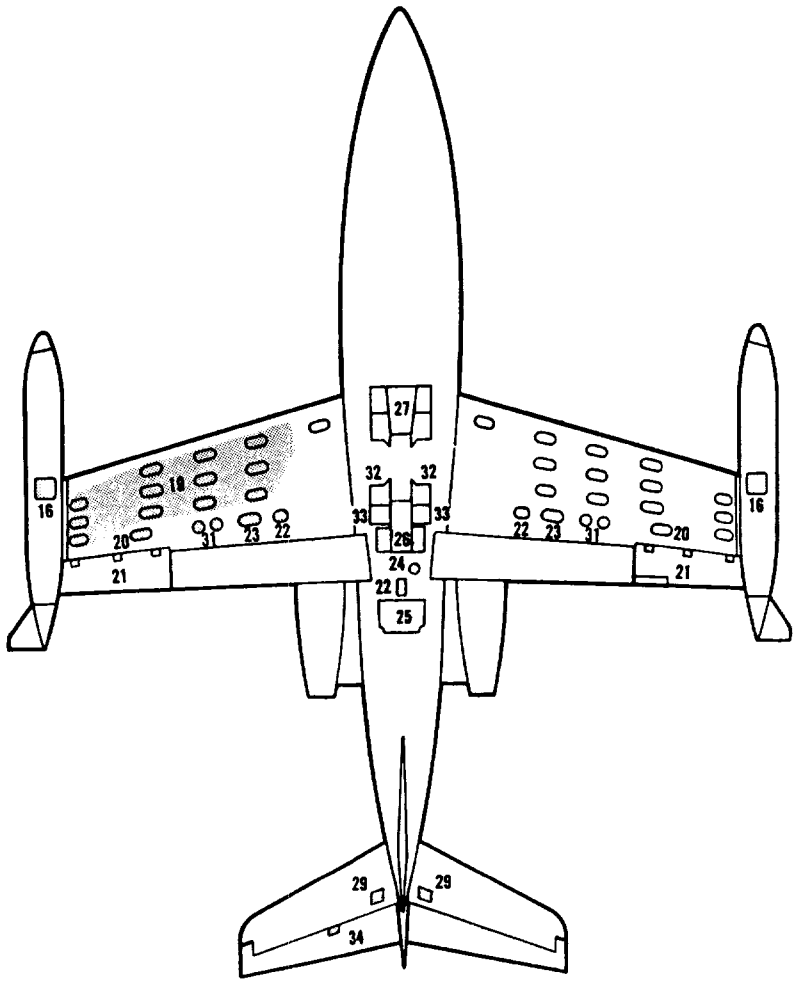
Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 1 (Sheet 3 of 3)



1. Fuel Filler
2. Fuel Probe
3. Tip Tank Access
4. Directisyn Flux Valve
5. Electronic Equipment, Oxygen and Air Bottles, and Windshield De-Ice Tank
6. Emergency Exit Window
7. Fuselage Fuel Tank Probe
8. Wing Tip Fuel and Electrical Connections
9. Vertical Stabilizer Attach Points and Controls (LH Side Only)
10. Rear Nacelle
11. Lower Nacelle
12. Nacelle Nose Cap
13. Upper Nacelle
14. Rudder Hinge and Rudder Tab Actuator
15. Stabilizer Actuator Lower Attach
16. Tip Tank Fuel Pump
17. Rudder Attach Points
18. Rudder Hinge and Balance Weights
19. Wing Fuel Tank (Typical Both Wings)
20. Aileron controls

(TYPICAL)

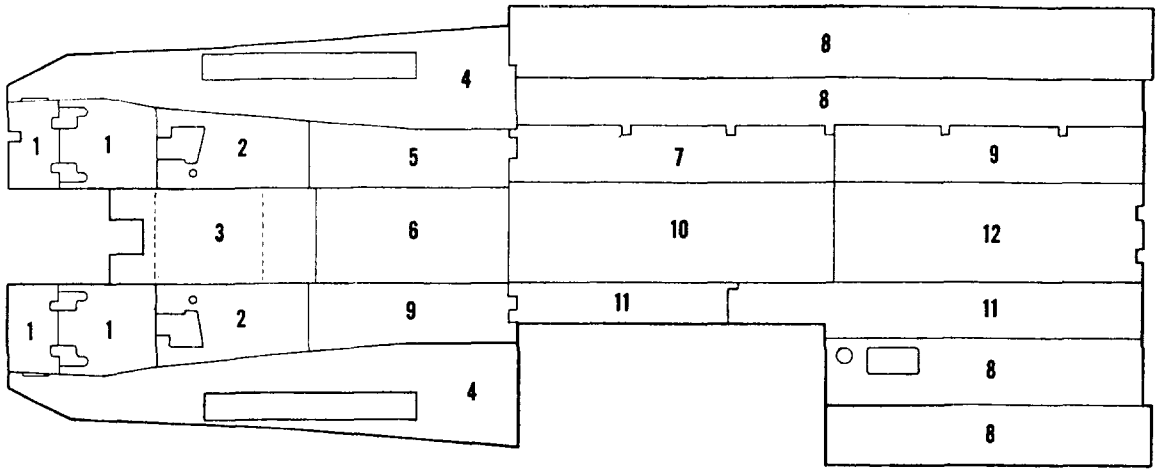
Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 2 (Sheet 1 of 3)



21. Aileron Actuator and Hinges
22. Fuel Vent Lines
23. Wing Flap Bellcrank and Spoiler Actuator
24. Fuselage Fuel Tank Probe (Lower Fitting)
25. Batteries, Electrical Components, Fuel Filters, Refrigeration and Hydraulic Components
26. Fuel Lines and Sump Drains
27. Wing Fuel Plumbing, Pumps and Hydraulic Lines
28. Elevator Controls (LH Side Only)
29. Horizontal Stabilizer Attachment
30. Cabin Door
31. Fuel Vent Lines
32. Fuel Shutoff Valves
33. Fuel and Hydraulic Lines
34. Elevator Hinge
35. Stabilizer Actuator Upper Attach
36. Pitch Servo Cable Drum and Pulleys (RH Only)
37. Wire Bundle and Conduit
38. Nav 1 and Nav 2 Antenna
39. Pitch Servo
40. Pitch Servo Cable Drum and Pulleys (Optional)
41. Rudder Servo
42. Fuel/Defuel Adapter - Single Point (RH Only)
43. Precheck Panel - Single Point (RH Only)

(TYPICAL)

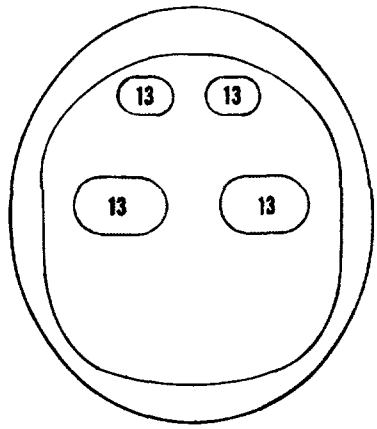
Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 2 (Sheet 2 of 3)



FLOORBOARDS AND INNER SKIN

▷ *Aircraft 24-100 thru 24-129*

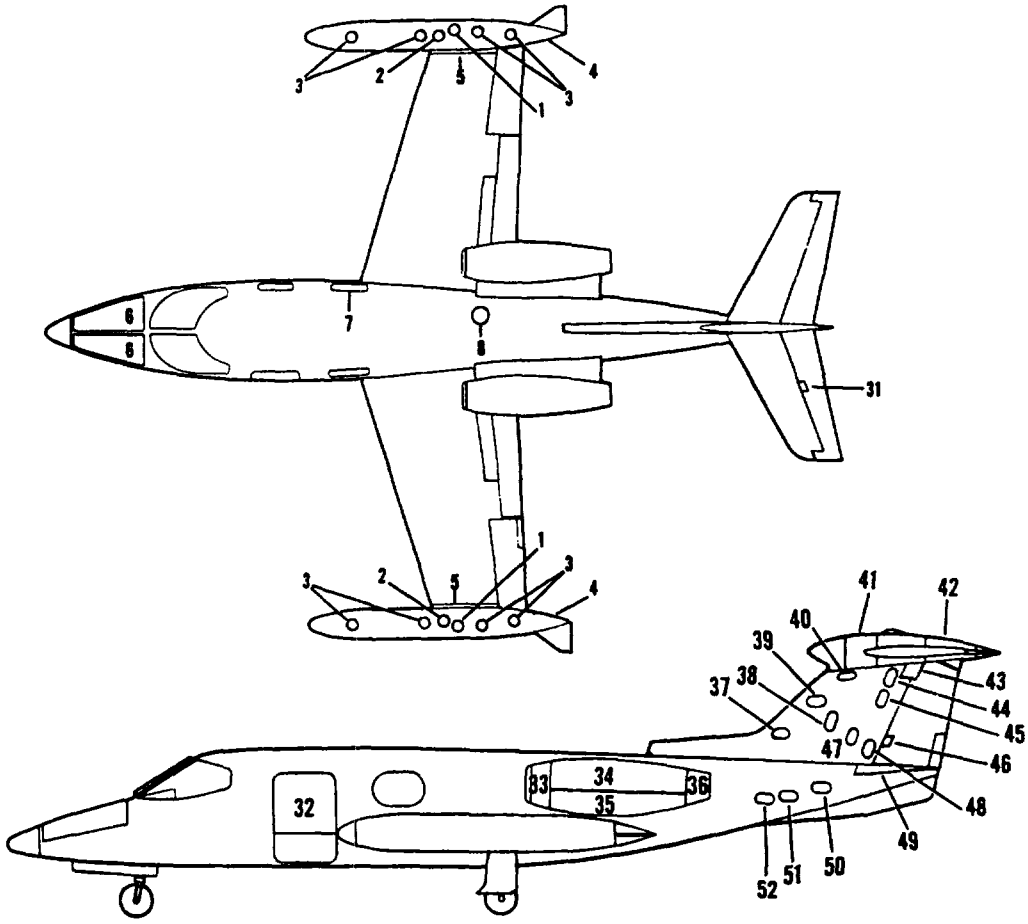
1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Controls Sector
4. Hydraulic Lines - Inner Skin
5. Brake System Shuttle Valves
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Control Valve
8. Cabin Air Distribution Ducts - Inner Skin
9. Hydraulic Lines
10. Control Cables, Pulleys and Aileron-Rudder Interconnect
11. Hydraulic Lines, Emergency Air Lines and ▷ Refrigerant Line
12. Control Cables, Pulleys and Anti-Collision Beacon
13. Fuselage Fuel Cell



(VIEW LOOKING FORWARD)
FRAME 24

(TYPICAL)

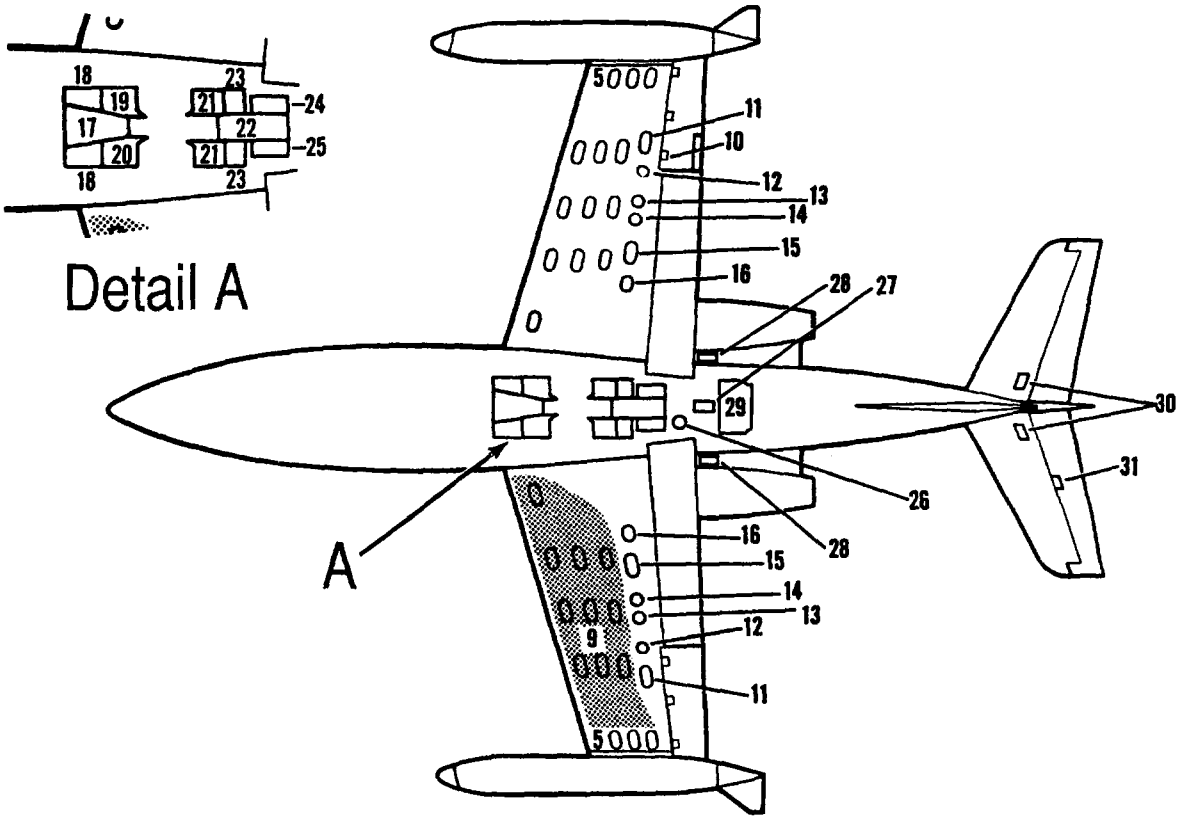
Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 2 (Sheet 3 of 3)



1. Fuel Filler - Standard
2. Fuel Probe
3. Tip Tank Access
4. Directisyn Flux Valve
5. Wing Tip Fuel and Electrical Connections
6. Electronic Equipment, Oxygen and Air Bottles, and Windshield De-Ice Tank
7. Emergency Exit Window
8. Fuselage Fuel Tank Probe
9. Wing Fuel Tank (Typical Both Wings)
10. Aileron Trim Tab Actuator (LH Only)
11. Aileron Controls, Autopilot Roll Follow-Up (LH Only)
12. Fuel Probe Connector
13. Wing Access
14. Flap Actuator Attachment
15. Wing Flap Sector, Spoiler Actuator
16. Fuel Vent Lines, Hydraulic Lines
17. Rudder and Elevator Cable Turnbuckles and Fuel Drain Valve
18. Hydraulic Lines
19. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve, Wing Tank Drain Valve and ***on Aircraft 24-190 and Subsequent***, Defuel Valve
20. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain Valve and, ***on Aircraft 24-190 and Subsequent***, Defuel Valve
21. Fuel Lines
22. Fuel Lines, Fuel Tank Drain Valve, Elevator, Aileron and Rudder Cables and Aileron Sector

(TYPICAL)

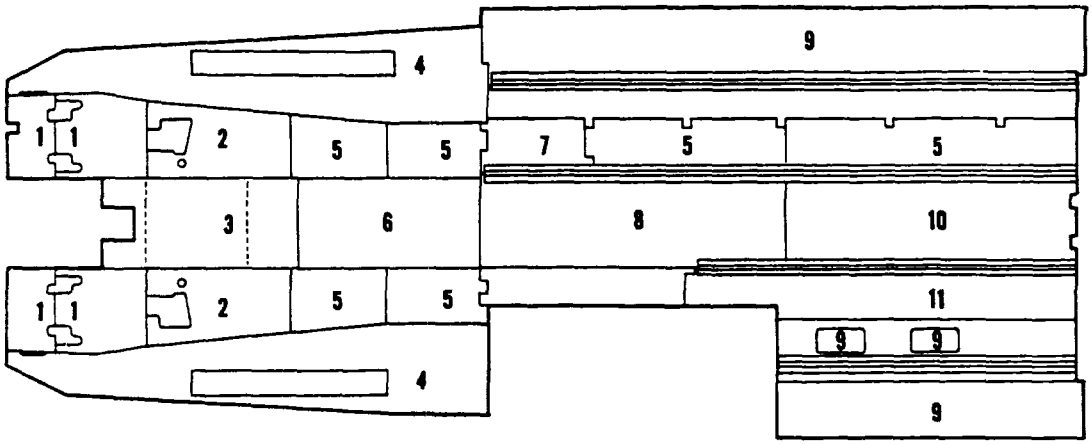
Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 3 (Sheet 1 of 4)



23. Fuel and Hydraulic Lines, Aileron Cable Turnbuckles and Fuel Shutoff Valve
24. Fuel Pump and Fuel Drain Valve
25. Fuel Drain Valve
26. Fuselage Fuel Tank Probe (Lower Fitting)
27. Fuel Vent Lines, Elevator and Rudder Cables
28. Pylon Access
29. Batteries, Electrical Components, Fuel Filters, Refrigeration and Hydraulic Components
30. Horizontal Stabilizer Hinge Points
31. Elevator Hinge
32. Cabin Door
33. Nose Cap Air Intake
34. Upper Nacelle
35. Bottom Nacelle
36. Rear Nacelle
37. Structural Inspection
38. Pitch Servo Electrical Plug
39. Structural Inspection
40. Stabilizer Actuator Lower Attachment
41. Stabilizer Actuator Upper Attachment and Elevator Down Spring Upper Attachment
42. Elevator Inboard Hinge and Bellcrank
43. Rudder Hinge and Bellcrank
44. Pitch Servo Cable Pulley (RH Side)
45. Elevator Controls and Idler Arm
46. Rudder Hinge and Rudder Tab Actuator
47. Pitch Servo
48. Yaw Servo and Follow-Up
49. Rudder Bellcrank, Yaw Servo Sector, Bottom Rudder Hinge Point, Servo Sector Cables and Rudder Cables
50. Rudder Control Cables
51. Elevator Sector, Push-Pull Tubes, Autopilot Pitch Follow-Up, Elevator and Rudder Control Cables
52. Ram Air Fuel Vent Lines, Rudder and Elevator Cables

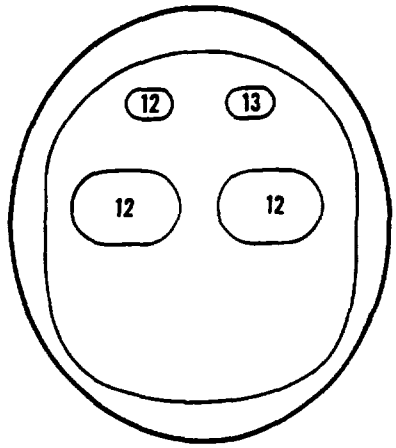
(TYPICAL)

Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 3 (Sheet 2 of 4)



FLOORBOARDS AND INNER SKIN

1. Brake Valves and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Elevator and Rudder Sectors
4. Hydraulic Lines, Distribution Ducts and Brake System Shuttle Valves (RH Side Only)
5. Hydraulic Lines
6. Control Cables, Pulleys, Roll Servo and Warm Air Ducting
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pneumatic Lines, Hydraulic Lines, Aileron-Rudder Interconnect and Air Distribution Duct
9. Cabin Air Distribution Ducts
10. Control Cables, Pneumatic Lines, Hydraulic Lines and Anti-Collision Beacon
11. Pneumatic Lines, Hydraulic Lines and Air Distribution Duct
12. Fuselage Fuel Cell
13. Float Switch and Fuselage Vent Lines

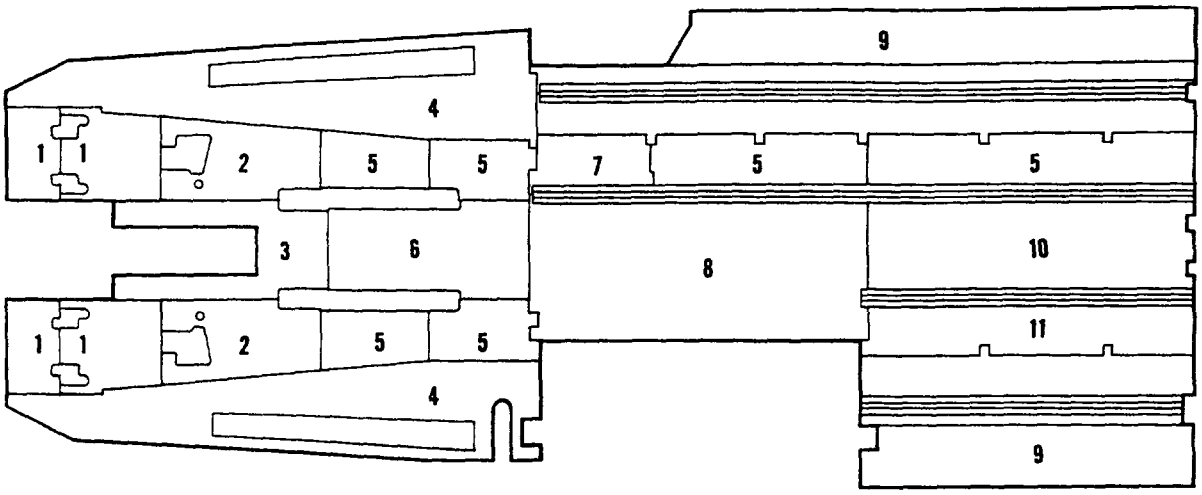


(VIEW LOOKING FORWARD)
FRAME 24

(Aircraft 24-181 thru 24-209)

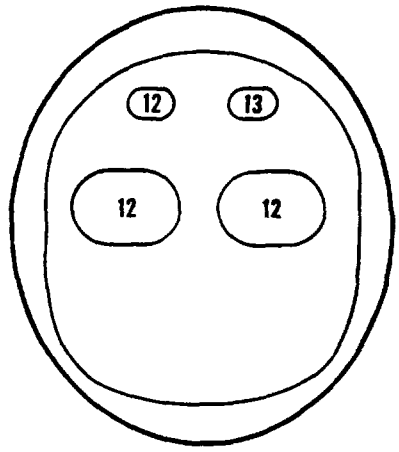
(TYPICAL)

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 3 (Sheet 3 of 4)



FLOORBOARDS AND INNER SKIN

1. Brake Valves and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Elevator and Rudder Sectors
4. Hydraulic Lines, Distribution Ducts and Brake System Shuttle Valves (RH Side Only)
5. Hydraulic Lines
6. Control Cables, Pulleys, Roll Servo and Warm Air Ducting
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pneumatic Lines, Hydraulic Lines, Aileron-Rudder Interconnect and Air Distribution Duct
9. Cabin Air Distribution Ducts
10. Control Cables, Pneumatic Lines, Hydraulic Lines and Anti-Collision Beacon
11. Pneumatic Lines, Hydraulic Lines and Air Distribution Duct
12. Fuselage Fuel Cell
13. Float Switch and Fuselage Vent Lines

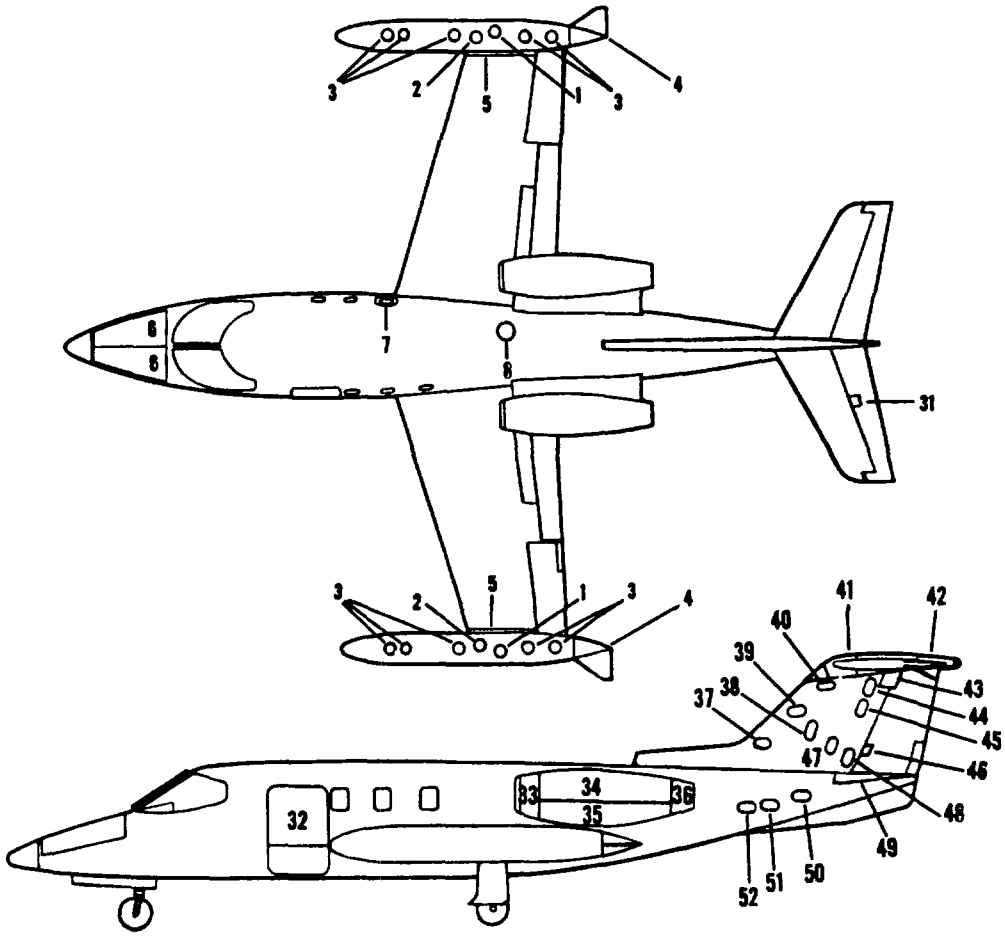


(VIEW LOOKING FORWARD)
FRAME 24

(Aircraft 24-210 and Subsequent)

(TYPICAL)

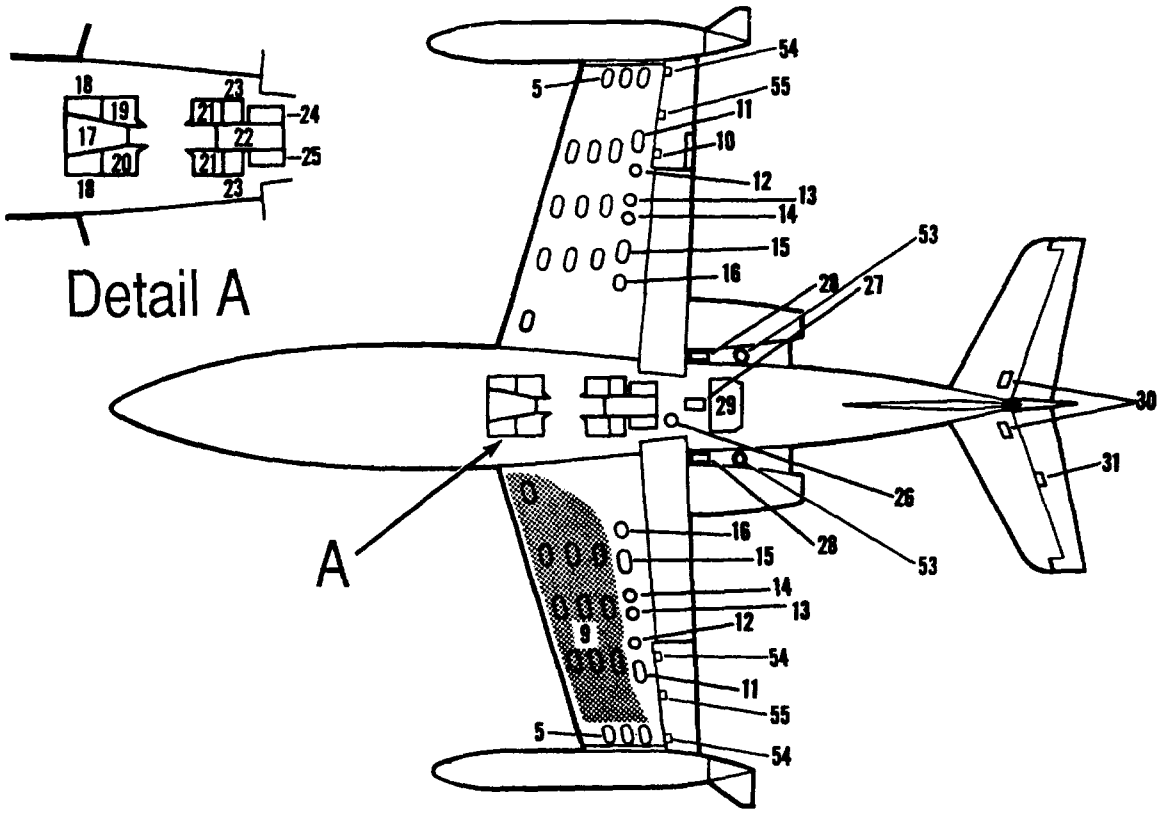
Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 3 (Sheet 4 of 4)



1. Fuel Filler
2. Fuel Probe
3. Tip Tank Access
4. Directisyn Flux Valve
5. Wing Tip Fuel and Electrical Connections
6. Electronic Equipment, Oxygen and Air Bottles, and Windshield De-Ice Tank
7. Emergency Exit Window
8. Fuselage Fuel Tank Probe (*24D/F Aircraft*)
9. Wing Fuel Tank (Typical Both Wings)
10. Aileron Trim Tab Actuator (LH Only), Aileron Hinge Bolt
11. Aileron Controls, Autopilot Roll Follow-Up (LH Only)
12. Fuel Probe Connector
13. Wing Access
14. Flap Actuator Attachment
15. Wing Flap Sector, Spoiler Actuator
16. Fuel Vent Lines, Hydraulic Lines
17. Rudder and Elevator Cable Turnbuckles and Fuel Drain Valve
18. Hydraulic Lines
19. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve, Wing Tank Drain Valve and Defuel Valve
20. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain Valve and Defuel Valve
21. Fuel Lines
22. Fuel Lines, Fuel Tank Drain Valve, Elevator, Aileron and Rudder Cables and Aileron Sector
23. Fuel and Hydraulic Lines, Aileron Cable Turnbuckles, Wing Fuel Pressure Switch and Fuel Shutoff Valve

(TYPICAL)

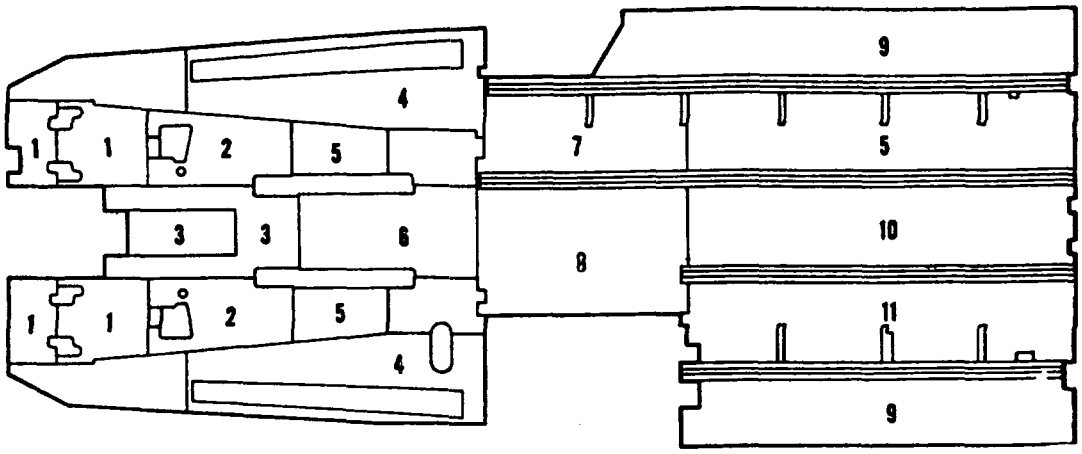
Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 4 (Sheet 1 of 4)



24. Fuel Pump and Fuel Drain Valve (*24D/F Aircraft*)
25. Fuel Drain Valve (*24D/F Aircraft*)
26. Fuselage Fuel Tank Probe (Lower Fitting) (*24D/F Aircraft*)
27. Elevator and Rudder Cables
28. Pylon Access
29. Batteries, Electrical Components, Fuel Filters, Refrigeration and Hydraulic Components
30. Horizontal Stabilizer Hinge Points
31. Elevator Hinge
32. Cabin Door
33. Nose Cap Air Intake
34. Upper Nacelle
35. Lower Nacelle
36. Rear Nacelle
37. Structural Inspection
38. Pitch DC Torquer Electrical Plug
39. Structural Inspection
40. Stabilizer Actuator Lower Attachment
41. Stabilizer Actuator Upper Attachment and Elevator Down Spring Upper Attachment
42. Elevator Inboard Hinge and Bellcrank
43. Rudder Hinge and Balance Weight
44. Pitch DC Torquer Cable Pulley (RH Side)
45. Elevator Controls and Idler Arm
46. Rudder Hinge and Rudder Tab Actuator
47. Pitch DC Torquer (RH Side,LH Side Optional)
48. Yaw DC Torquer and Follow-Up
49. Rudder Bellcrank, Yaw DC Torquer Sector, Bottom Rudder Hinge Point, DC Torquer Sector Cables and Rudder Cables
50. Rudder Control Cables
51. Elevator Sector, Push-Pull Tubes, Autopilot Pitch Follow-Up, Elevator and Rudder Control Cables
52. Rudder and Elevator Cables
53. Bleed Air Shutoff Valve (Typical LH & RH), *Aircraft 24-350 and Subsequent*
54. Aileron Hinge Bolt
55. Aileron Drive Clevis Bolt, Aileron Hinge bolt

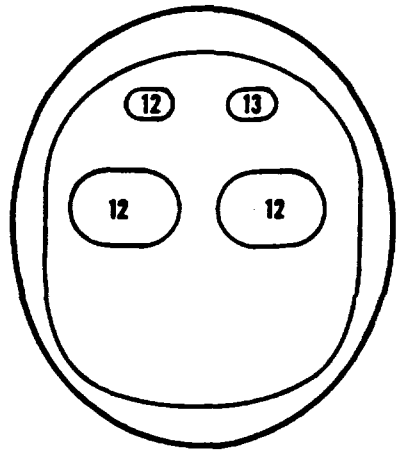
(TYPICAL)

Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 4 (Sheet 2 of 4)



FLOORBOARDS AND INNER SKIN

1. Brake Valves and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Elevator and Rudder Sectors
4. Hydraulic Lines, Distribution Ducts and Brake System Shuttle Valves (RH Side Only)
5. Hydraulic Lines
6. Control Cables, Pulleys, Roll DC Torquer and Air Distribution Duct
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pneumatic Lines, Hydraulic Lines and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Control Cables, Pneumatic Lines, Hydraulic Lines and Anti-Collision Beacon
11. Pneumatic Lines, Hydraulic Lines and Air Distribution Duct
12. Fuselage Fuel Cell (*24D/F Aircraft*)
13. Float Switch and Fuselage Vent Lines (*24D/F Aircraft*)

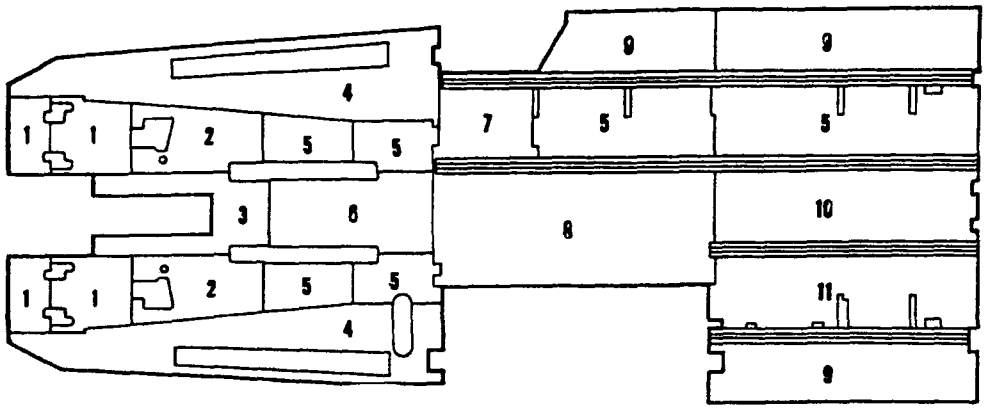


(VIEW LOOKING FORWARD)
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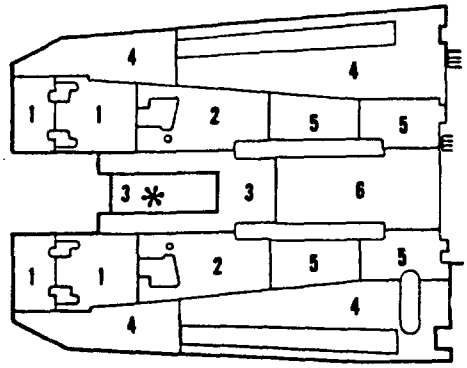
(*Aircraft equipped with 24-Inch Door*)

(TYPICAL)

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 4 (Sheet 3 of 4)

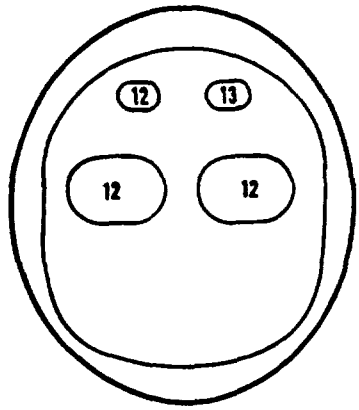


(*Aircraft 24-230 thru 24-253*)



(**Aircraft 24-243 and Subsequent*)

(*Aircraft 24-243 and Subsequent*)



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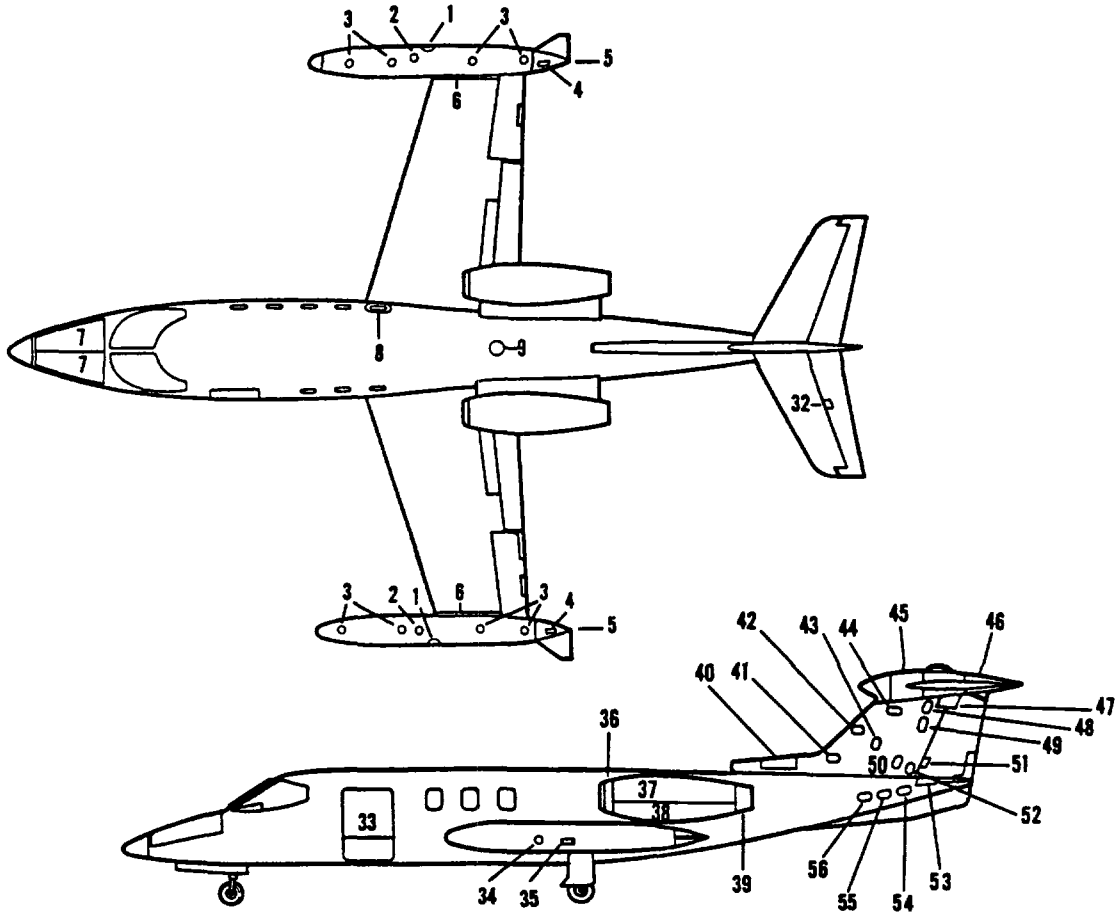
FLOORBOARDS AND INNER SKIN

1. Brake Valves and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Elevator and Rudder Sectors
4. Hydraulic Lines, Distribution Ducts and Brake System Shuttle Valves (RH Side Only)
5. Hydraulic Lines
6. Control Cables, Pulleys, Roll DC Torquer and Air Distribution Duct
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pneumatic Lines, Hydraulic Lines and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Control Cables, Pneumatic Lines, Hydraulic Lines and Anti-Collision Beacon
11. Pneumatic Lines, Hydraulic Lines and Air Distribution Duct
12. Fuselage Fuel Cell (*24D/F Aircraft*)
13. Float Switch and Fuselage Vent Lines (*24D/F Aircraft*)

(*Aircraft equipped with 36-Inch Door*)

(TYPICAL)

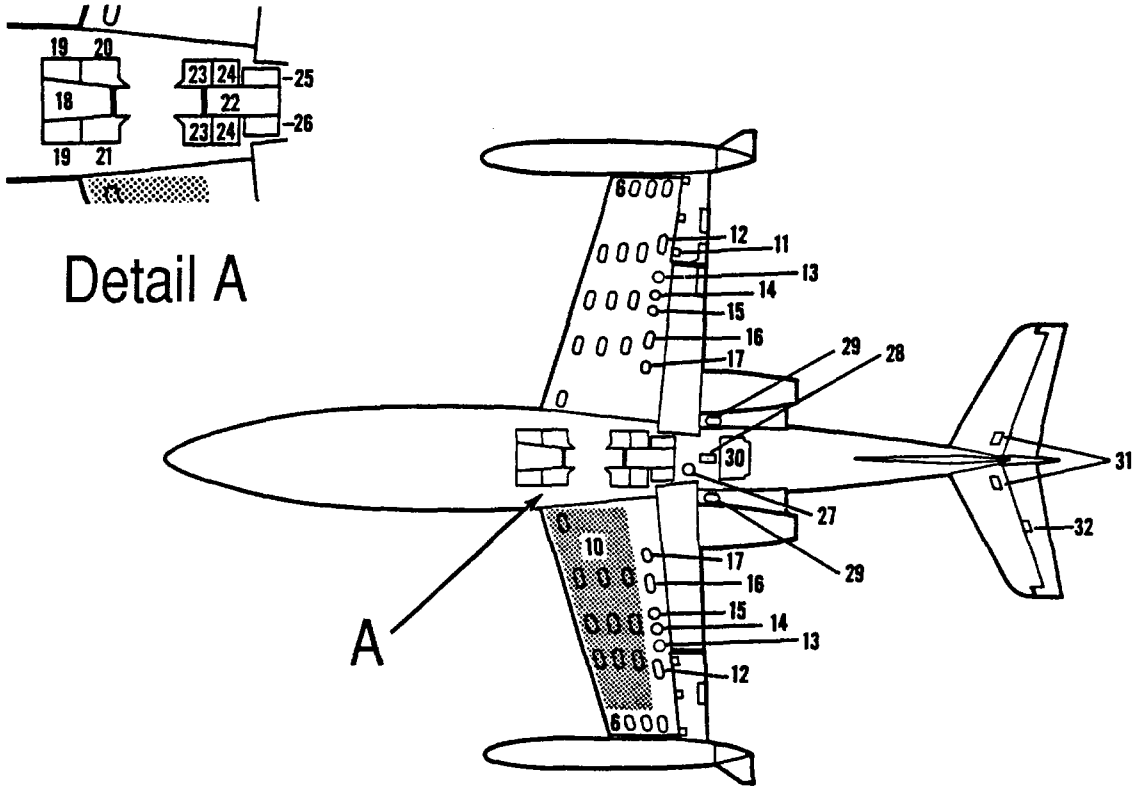
Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 4 (Sheet 4 of 4)



1. Fuel Filler-Standard
2. Fuel Probe
3. Tip Tank Access
4. Directisyn Flux Valve
5. Fuel Dump Valve
6. Wing Tip Fuel and Electrical Connections
7. Electronic Equipment, Air Bottle, Alcohol Anti-Ice Tank and, *on Aircraft 25-003 thru 25-024*, Oxygen Bottle
8. Emergency Exit Window
9. Fuselage Fuel Tank Probe
10. Wing Fuel Tank (Typical Both Wings)
11. Aileron Trim Tab Actuator (LH Only)
12. Aileron Controls and , *on Aircraft 25-025 and Subsequent*, Autopilot Roll Follow-Up (LH Only)
13. Fuel Probe Connector
14. Wing Access
15. Flap Actuator Attachment
16. Wing Flap Sector, Spoiler Actuator
17. Fuel Vent Lines
18. Rudder and Elevator Cable Turnbuckles and Sump Drain Valve
19. Hydraulic Lines
20. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve and *on Aircraft 25-030 and Subsequent*, Fuel Drain Valve
21. Fuel Plumbing, Hydraulic Lines and, *on Aircraft 25-030 and Subsequent*, Fuel Drain Valve
22. Fuel Lines, Sump Drain, Elevator, Aileron and Rudder Cables and Aileron Sector
23. Fuel Lines
24. Fuel and Hydraulic Lines, Aileron Cable Turnbuckles and Fuel Shutoff Valve

(TYPICAL)

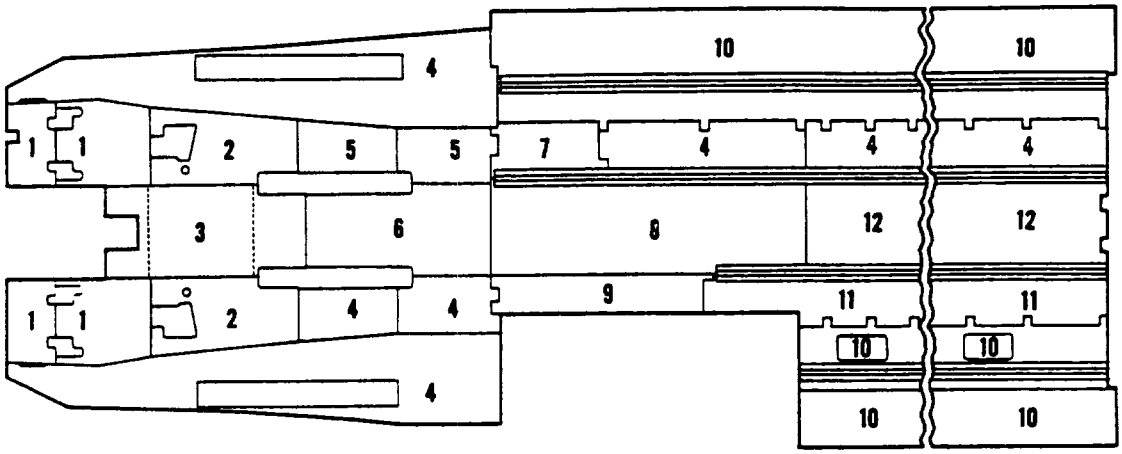
Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 5 (Sheet 1 of 4)



25. Fuel Pump and Fuel Drain Valve
26. Fuel Drain Valve
27. Fuselage Fuel Tank Probe (Lower Fitting)
28. Fuel Vent Lines
29. Pylon Access
30. Batteries, Electrical Components, Fuel Filters, Refrigeration Equipment, Hydraulic Components and Secondary Yaw Servo
31. Horizontal Stabilizer Hinge Points
32. Elevator Hinge
33. Cabin Door
34. Fuel/Defuel Adapter (Single Point) RH Only
35. Precheck Panel (Single Point) RH Only
36. Nose Cap Air Intake
37. Upper Nacelle
38. Bottom Nacelle
39. Rear Nacelle
40. Oxygen Bottle (*Aircraft 25-025 and Subsequent*)
41. Structural Inspection
42. Structural Inspection
43. Pitch Servo Electrical Plug
44. Stabilizer Actuator Lower Attachment
45. Stabilizer Actuator Upper Attachment and Elevator Down Spring Upper Attachment
46. Elevator Inboard Hinge and Bellcrank
47. Rudder Hinge and Balance Weight
48. Pitch Servo Cable Pulley (RH Side)
49. Elevator Controls and Idler Arm
50. Pitch Servo
51. Rudder Hinge and Rudder Tab Actuator
52. Primary Yaw Servo and Follow-Up
53. Rudder Bellcrank, Primary Yaw Servo Sector, Bottom Rudder Hinge Point, Servo Sector Cables, Rudder Cables and Secondary Follow-Up
54. Rudder Control Cables
55. Elevator Sector, Push-Pull Tubes, Autopilot Pitch Follow-Up, Elevator and Rudder Cables
56. Ram Air Fuel Vent Lines, Rudder and Elevator Cables

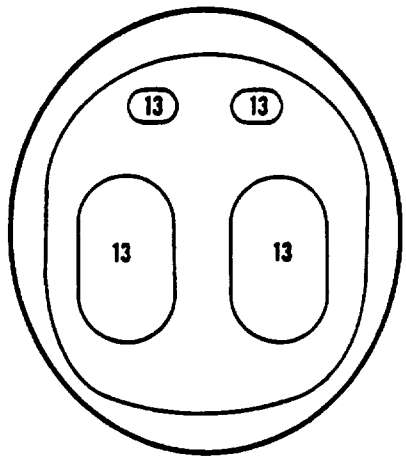
(TYPICAL)

Access Doors and Panels - Fuselage, Empennage & Stabilizers
Figure 5 (Sheet 2 of 4)



FLOORBOARDS AND INNER SKIN

1. Brake Valves and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron-Rudder Interconnect
9. Wire Bundle Conduit
10. Cabin Air Distribution Ducts
11. Hydraulic Lines, Emergency Air Lines
12. Control Cables, Pulleys and Anti-Collision Beacon
13. Fuselage Fuel Cell

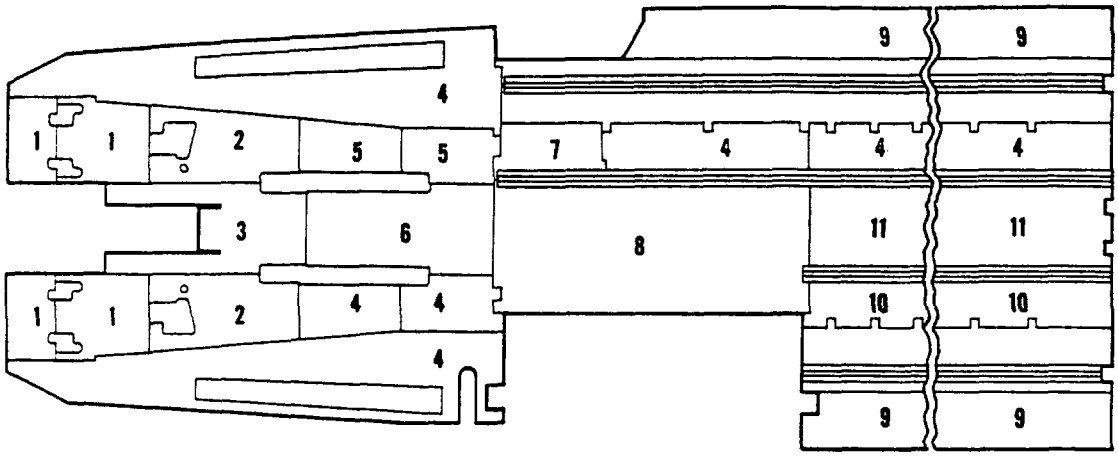


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(Aircraft 25-003 thru 25-039 and 25-041 thru 25-045)

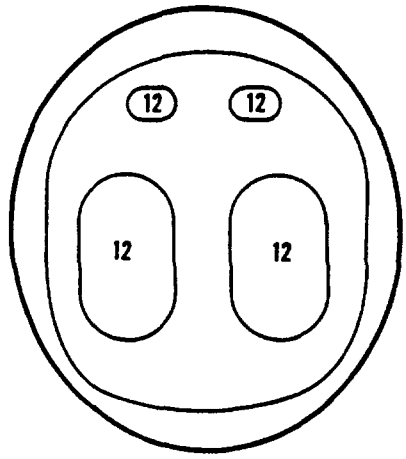
(TYPICAL)

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 5 (Sheet 3 of 4)



FLOORBOARDS AND INNER SKIN

1. Brake Valves and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines, Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Fuselage Fuel Cell

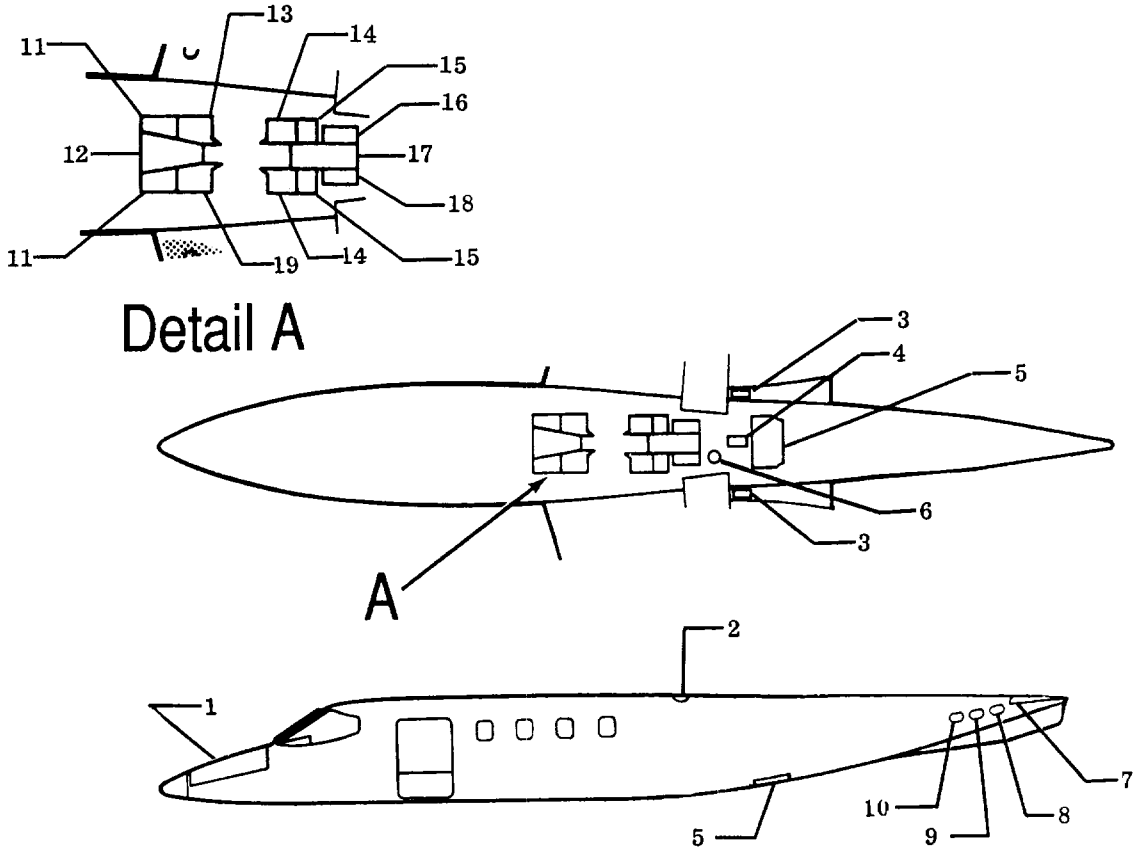


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(Aircraft 25-040 and 25-046 and Subsequent)

(TYPICAL)

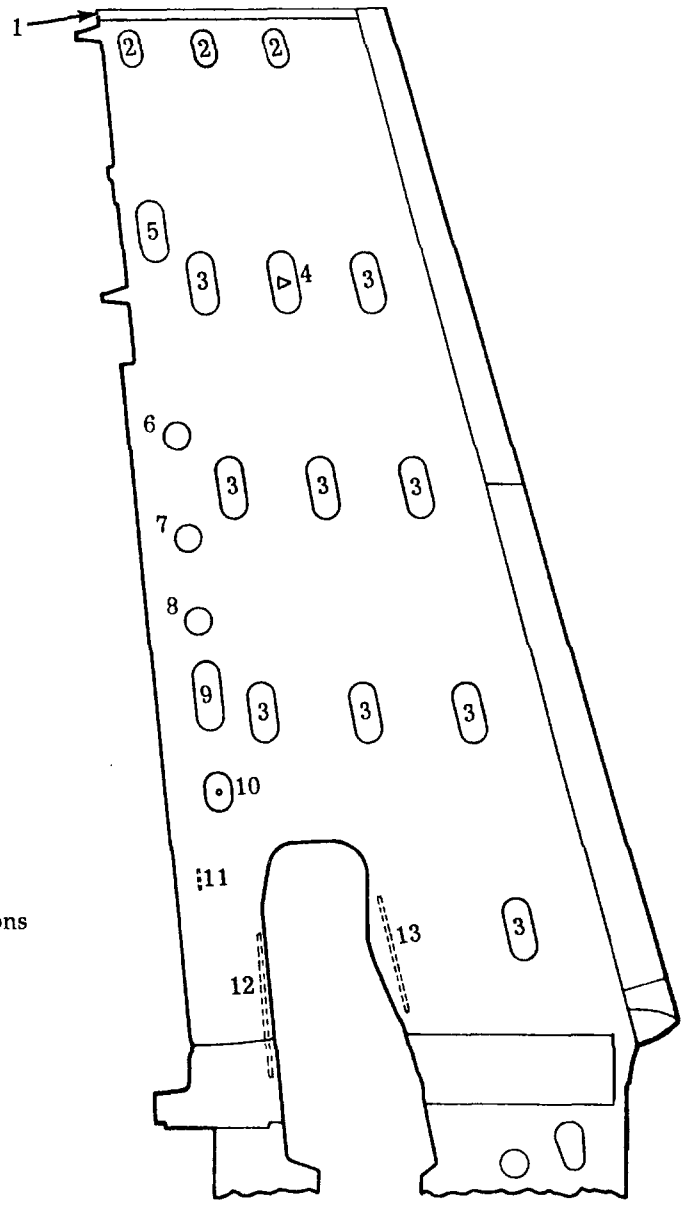
Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 5 (Sheet 4 of 4)



1. Electronic Equipment, Air Bottle, Oxygen Bottle (Optional) and Anti-Ice Tank
2. Fuselage Fuel Tank Probe
3. Pylon Access
4. Fuel Vent Valves
5. Batteries, Electrical Components, Fuel Filters, Refrigeration Equipment, Hydraulic Components and Secondary Yaw Servo
6. Fuselage Fuel Tank Probe (Lower Fitting)
7. Rudder Bellcrank, Primary Yaw Servo Sector, Rudder Bottom Hinge Point, Servo Sector Cables, Rudder Cables and Secondary Yaw Follow-Up
8. Rudder Control Cables
9. Elevator Sector, Push-Pull Tubes, Autopilot Pitch Follow-Up, Elevator and Rudder Control Cables
10. Rudder and Elevator Cables
11. Hydraulic Lines
12. Rudder and Elevator Cable Turnbuckles and Sump Drain Valve
13. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve and Fuel Drain Valve
14. Fuel Lines and *on 25 C/F Aircraft*, Transfer Valve
15. Fuel and Hydraulic Lines, Aileron Cable Turnbuckles, Wing Fuel Pressure Switch and *on 25 B/D Aircraft*, Fuel Shutoff Valve
16. Fuel Pump and Fuel Drain Valve
17. Fuel Lines, Fuel Tank Drain Valve, Elevator, Aileron and Rudder Cables, and Aileron Sector
18. Fuel Drain Valves
19. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain Valve and Defuel Valve

(TYPICAL)

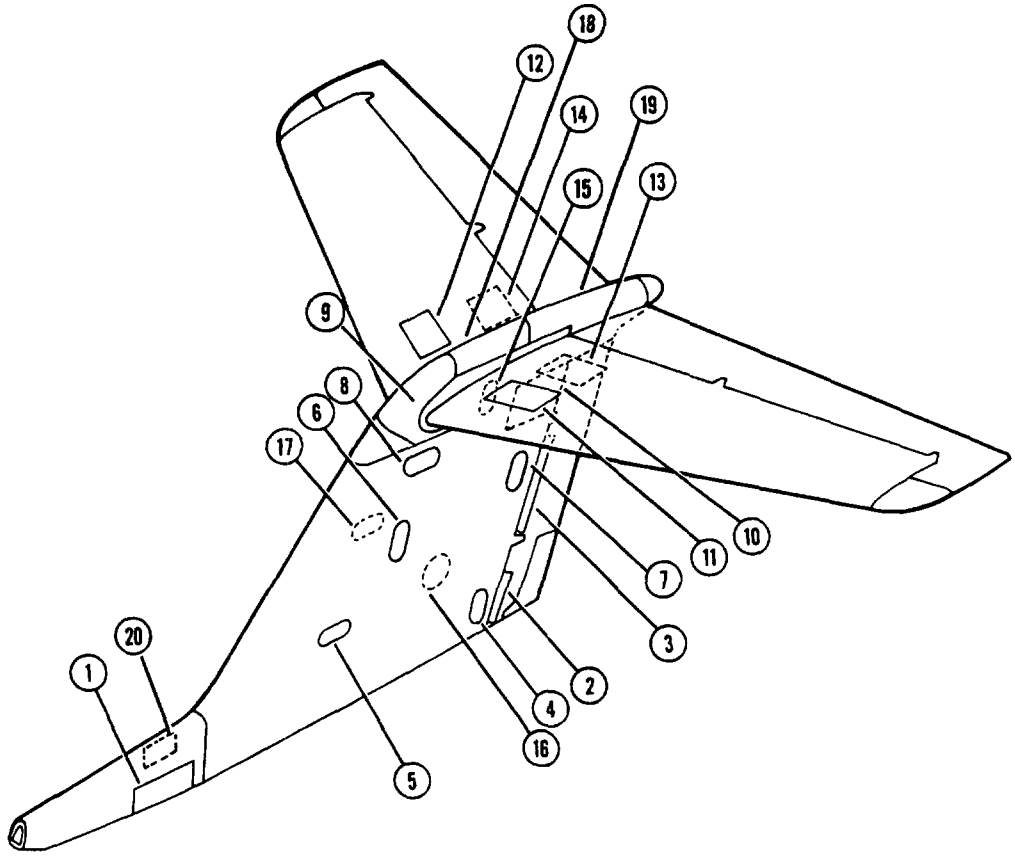
Access Doors and Panels - Fuselage & Empennage
Figure 6 (Sheet 1 of 5)



1. Tip Tank Attach Fittings
2. Wing Tip Fuel & Electrical Connections
3. Wing Fuel Tank
4. Fuel Vent Plumbing
5. Aileron Controls and Follow-Ups
6. Fuel Probe Connector
7. Wing Access
8. Flap Actuator Attachment
9. Flap Sector and Spoiler Actuator
10. Fuel Vent Lines
11. Main Gear Aft Trunnion Pin
12. Spar #7
13. Spar #5

(TYPICAL)

Access Doors and Panels - Wing
Figure 6 (Sheet 2 of 5)



1. Oxygen Cylinder Access (Optional)
2. Rudder Trim Tab Motor and Center Hinge Access
3. Rudder Balance Weight Access
4. Primary Yaw Servo and Capstan Access
5. Elevator Servo Access
6. Vertical Stabilizer Rib Inspection Access
7. Elevator Down Spring and Servo Cable Turnbuckle
8. Lower Horizontal Stabilizer Actuator Attach Point Access
9. Upper Horizontal Stabilizer Actuator Attach Point Access
10. Upper Rudder Attach Point Access

11. & 12. Leading Edge Hot Air Tube Access

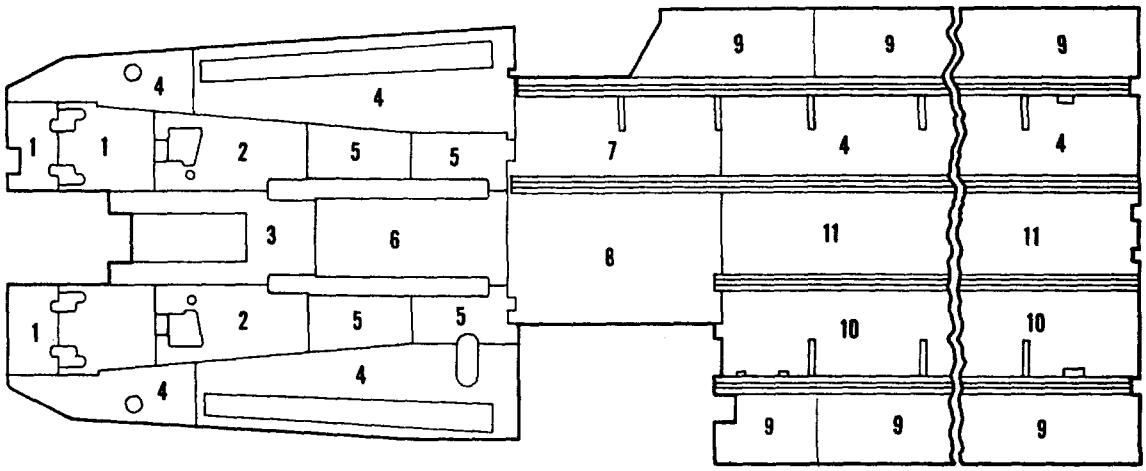
13. & 14. Horizontal Stabilizer Hinge Pin Access

15. Pitch Capstan Pulley and Cable Access
16. Pitch Capstan Access
17. Vertical Stabilizer Rib Inspection Access
18. Access Cover
19. Stinger
20. Oxygen Regulator Access (Optional)

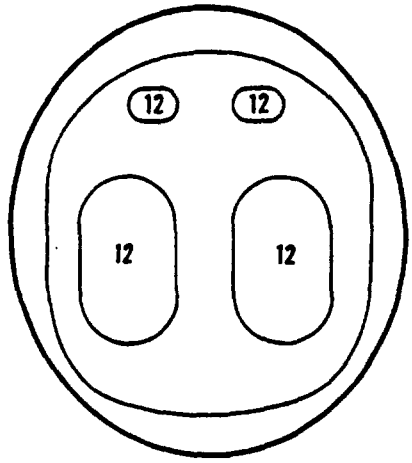
(TYPICAL)

5-31A-1

Access Doors and Panels - Stabilizers
Figure 6 (Sheet 3 of 5)



FLOORBOARDS AND INNER SKIN



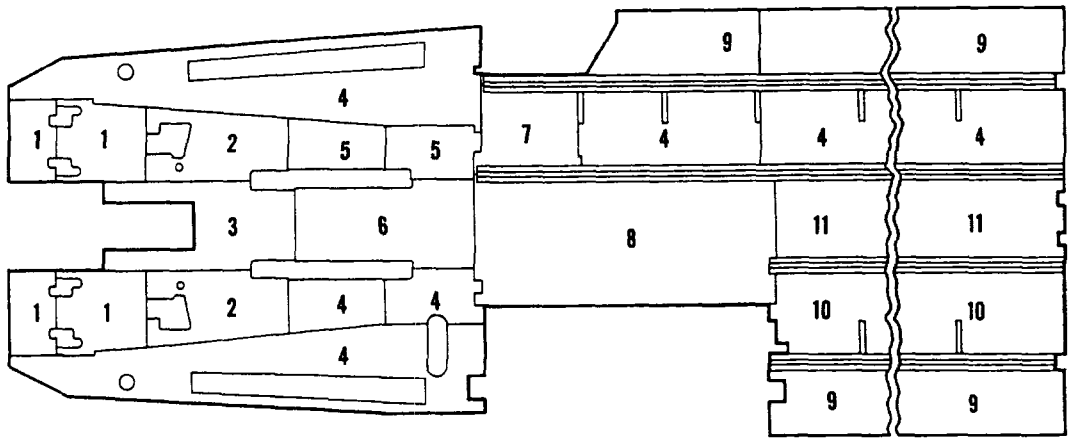
(VIEW LOOKING FORWARD)
FRAME 25

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Controls Sector
4. Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines and Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Fuselage Fuel Cell

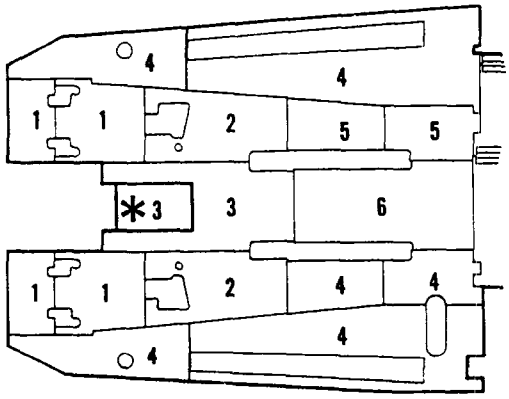
(Aircraft equipped with 24-Inch Door)

(TYPICAL)

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 6 (Sheet 4 of 5)

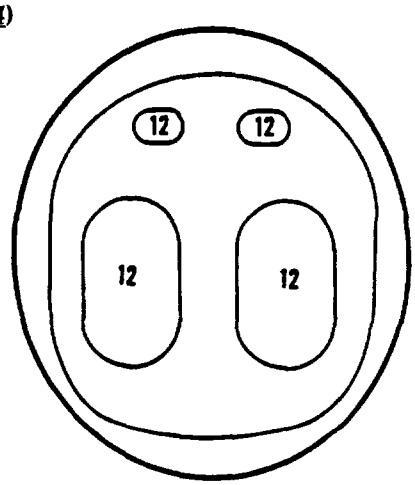


(*Aircraft 25-061 thru 25-074*)



(**Aircraft 25-105 and Subsequent*)

(*Aircraft 25-075 and Subsequent*)



(VIEW LOOKING FORWARD)
FRAME 24

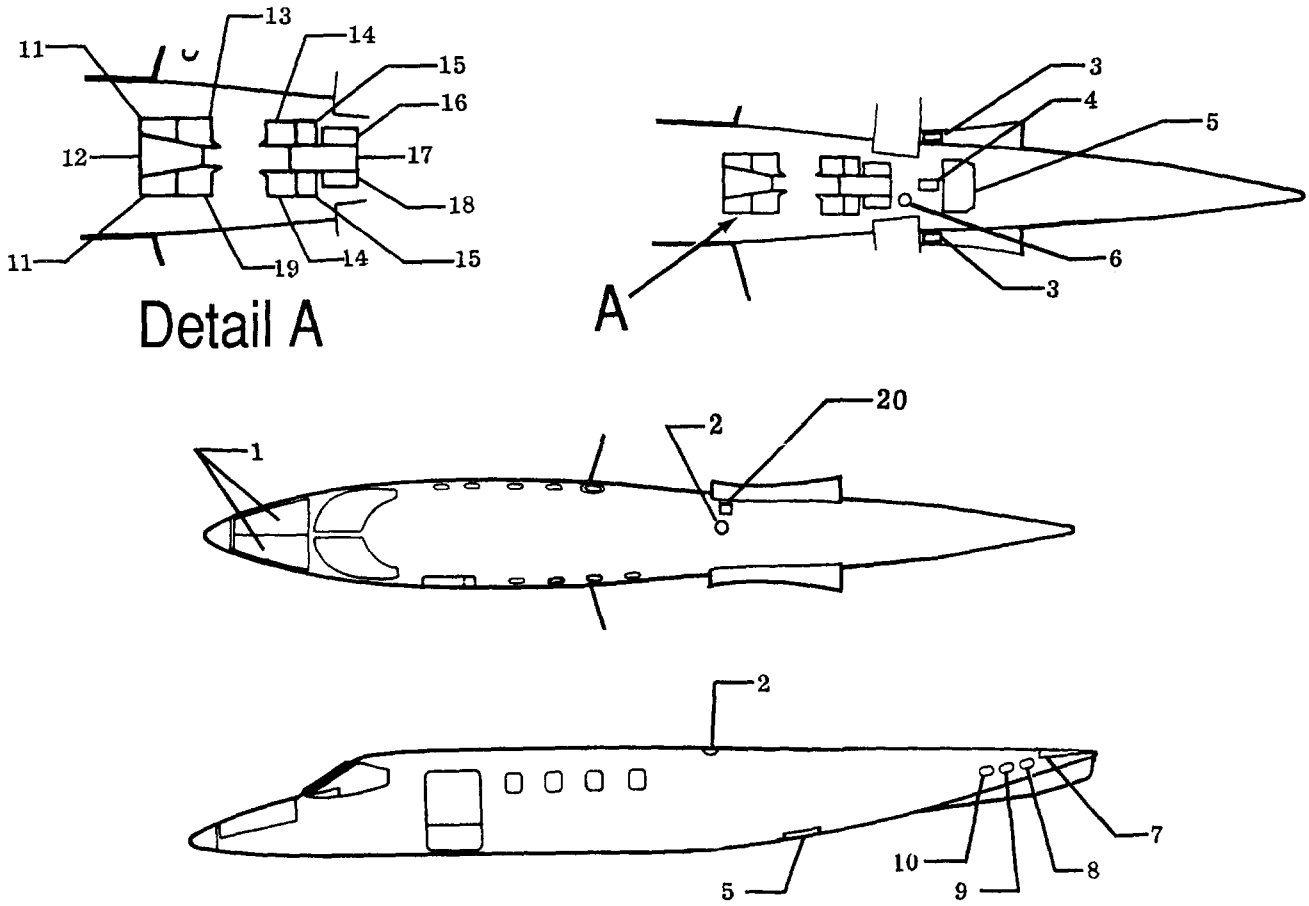
FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines and Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Fuselage Fuel Cell

(*Aircraft equipped with 36-Inch Door*)

(TYPICAL)

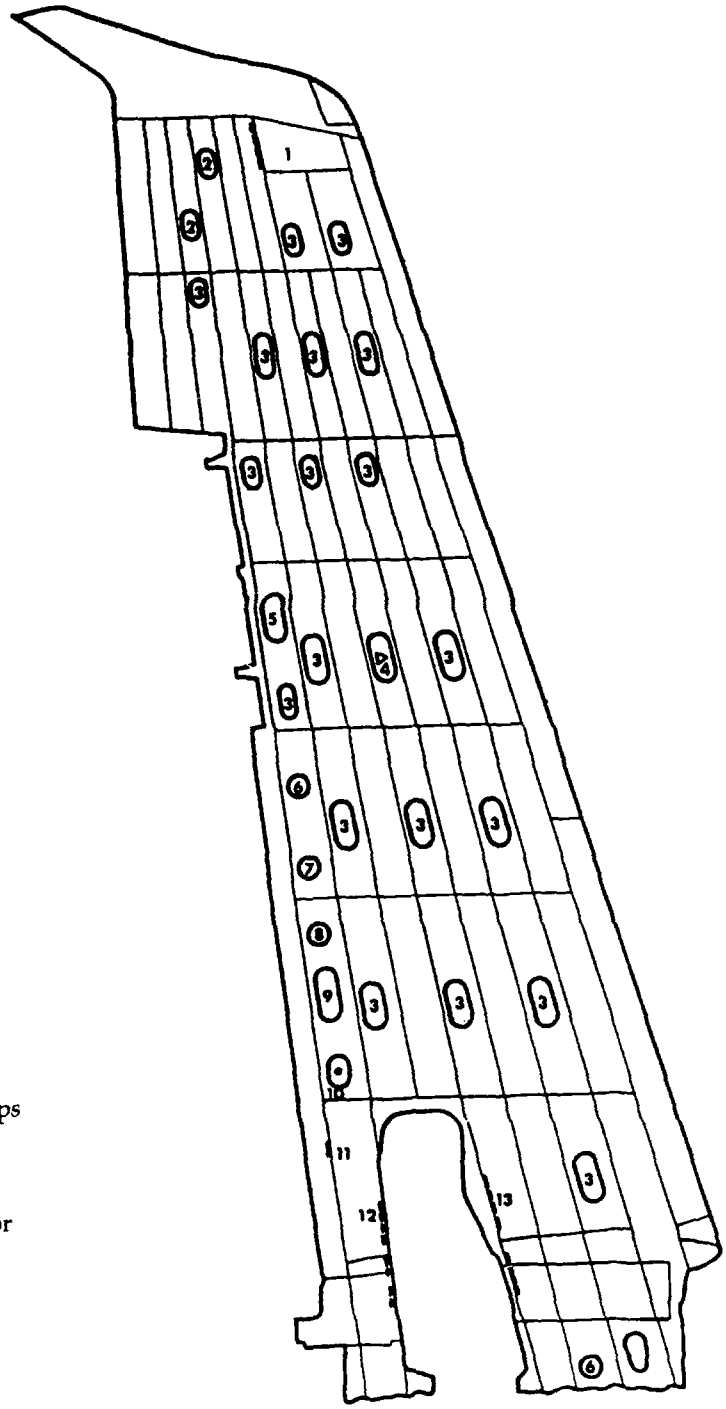
Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 6 (Sheet 5 of 5)



1. Electronic Equipment, Air Bottle, Oxygen Bottle (Optional) and Anti-Ice Tank
2. Fuselage Fuel Tank Probe
3. Pylon Access
4. Fuel Vent Valves
5. Batteries, Electrical Components, Fuel Filters, Refrigeration Equipment, Hydraulic Components and Secondary Yaw Servo
6. Fuselage Fuel Tank Probe (Lower Fitting)
7. Rudder Bellcrank, Primary Yaw Servo Sector, Rudder Bottom Hinge Point, Servo Sector Cables, Rudder Cables and Secondary Yaw Follow-Up
8. Rudder Control Cables
9. Elevator Sector, Push-Pull Tubes, Autopilot Pitch Follow-Up, Elevator and Rudder Control Cables
10. Rudder and Elevator Cables
11. Hydraulic Lines
12. Rudder and Elevator Cable Turnbuckles and Sump Drain Valve
13. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve and Fuel Drain Valve
14. Fuel Lines and ***on Model 29 Aircraft***, Transfer Valve
15. Fuel and Hydraulic Lines, Aileron Cable Turnbuckles, Wing Fuel Pressure Switch and ***on Model 28 Aircraft***, Fuel Shutoff Valve
16. Fuel Pump and Fuel Drain Valve
17. Fuel Lines, Fuel Tank Drain Valve, Elevator, Aileron and Rudder Cables, and Aileron Sector
18. Fuel Pump and Fuel Drain Valve
19. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain Valve and Defuel Valve
20. Fuselage Fuel Tank Filler

(TYPICAL)

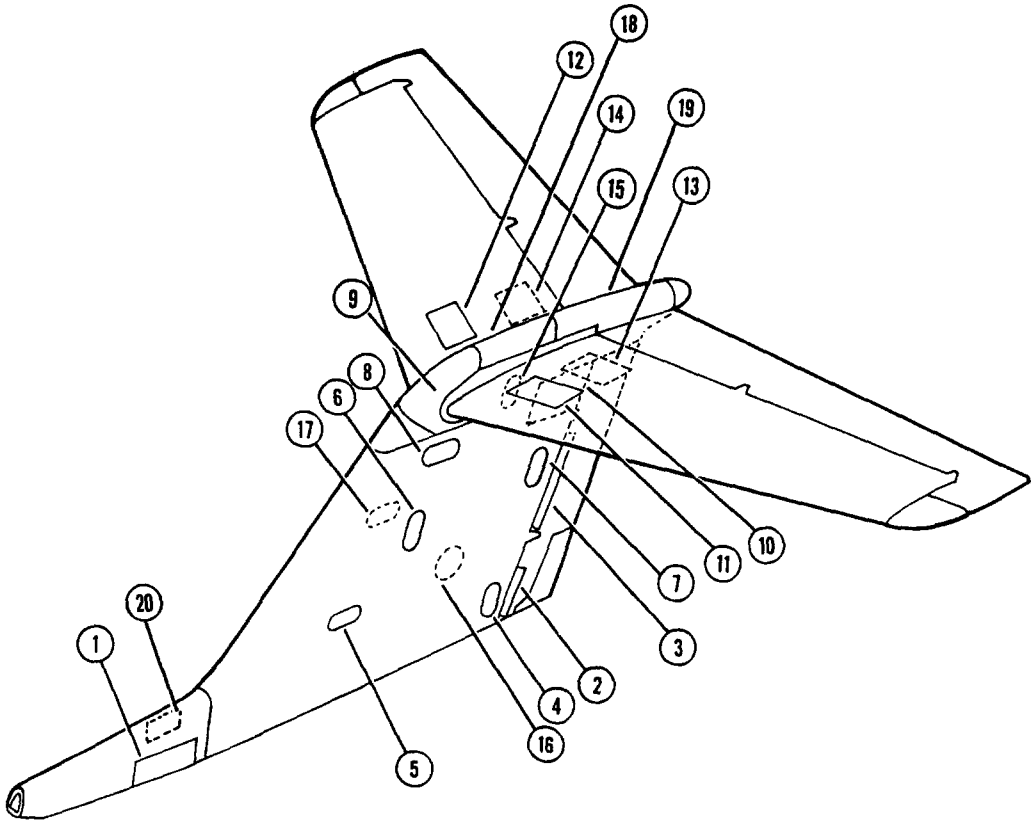
Access Doors and Panels - Fuselage & Empennage
Figure 7 (Sheet 1 of 5)



1. Flux Valve Installation
2. Electrical Connections
3. Wing Fuel Tank
4. Fuel Vent Plumbing
5. Aileron Controls and Follow-Ups
6. Fuel Probe Connector
7. Wing Access
8. Flap Actuator Attachment
9. Flap Sector and Spoiler Actuator
10. Fuel Vent Lines
11. Main Gear Aft Trunnion Pin
12. Spar #7
13. Spar #5

(TYPICAL)

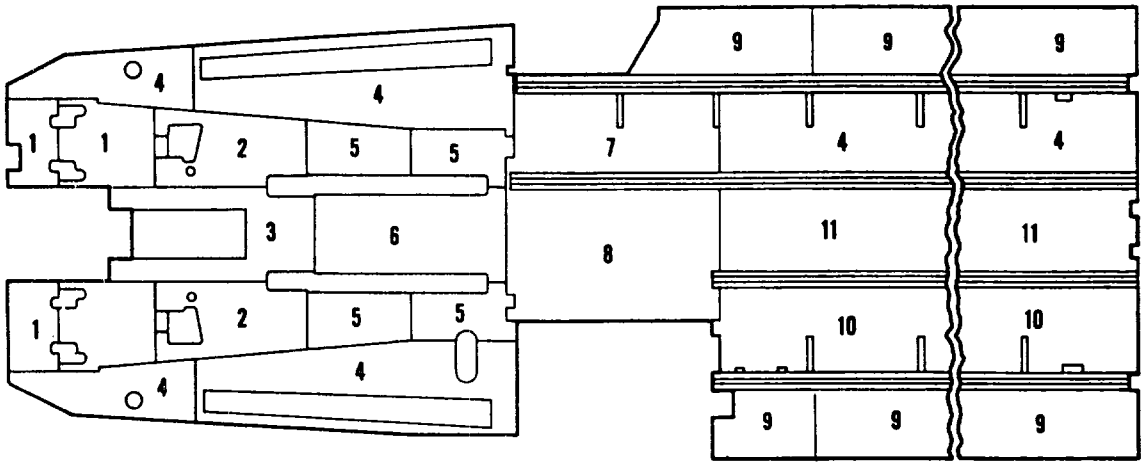
Access Doors and Panels - Wing
Figure 7 (Sheet 2 of 5)



1. Oxygen Bottle Access (Optional)
2. Rudder Trim Tab Motor and Center Hinge Access
3. Rudder Balance Weight Access
4. Primary Yaw Servo and Capstan Access
5. Elevator Servo Access
6. Vertical Stabilizer Rib Inspection Access
7. Elevator Down Spring and Servo Cable Turnbuckle
8. Lower Horizontal Stabilizer Actuator Attach Point Access
9. Upper Horizontal Stabilizer Actuator Attach Point Access
10. Upper Rudder Attach Point Access
11. & 12. Leading Edge Hot Air Tube Access
13. & 14. Horizontal Stabilizer Hinge Pin Access
15. Pitch Capstan Pulley and Cable Access
16. Pitch Capstan Access
17. Vertical Stabilizer Rib Inspection Access
18. Access Cover
19. Stinger
20. Oxygen Regulator Access (Optional)

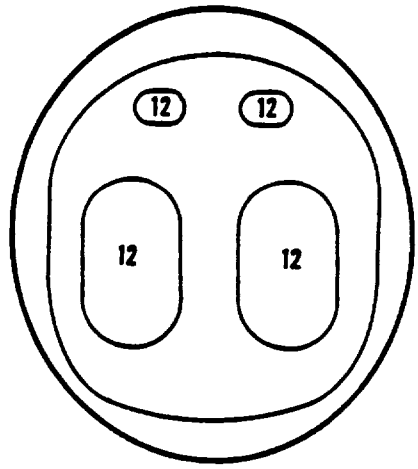
(TYPICAL)

Access Doors and Panels - Stabilizers
Figure 7 (Sheet 3 of 5)



FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valve and Hydraulic Lines
6. Control Cable, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines, Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Fuselage Fuel Cell



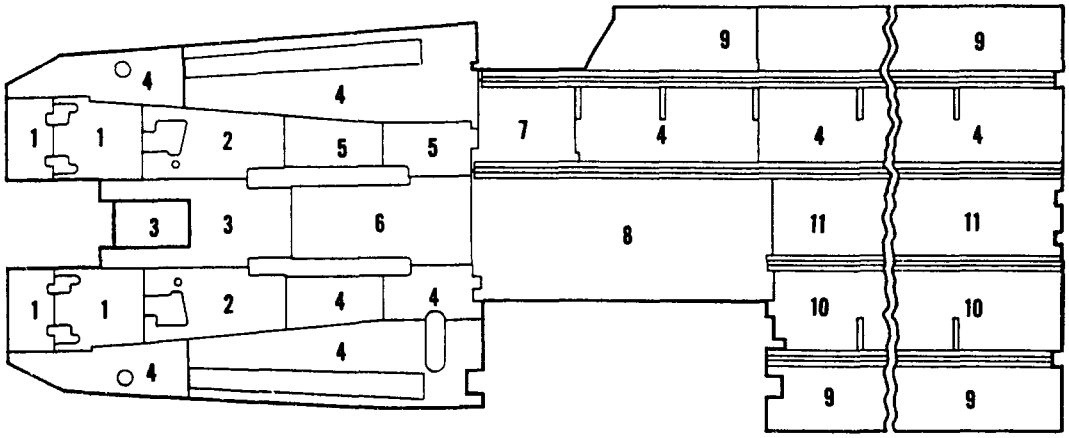
(VIEW LOOKING FORWARD)
FRAME 25

(Aircraft equipped with 24-Inch Door)

(TYPICAL)

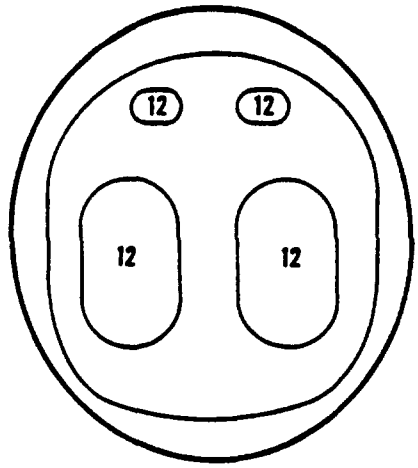
5-31A-1

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 7 (Sheet 4 of 5)



FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valve and Hydraulic Lines
6. Control Cable, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron-Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines, Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Fuselage Fuel Cell

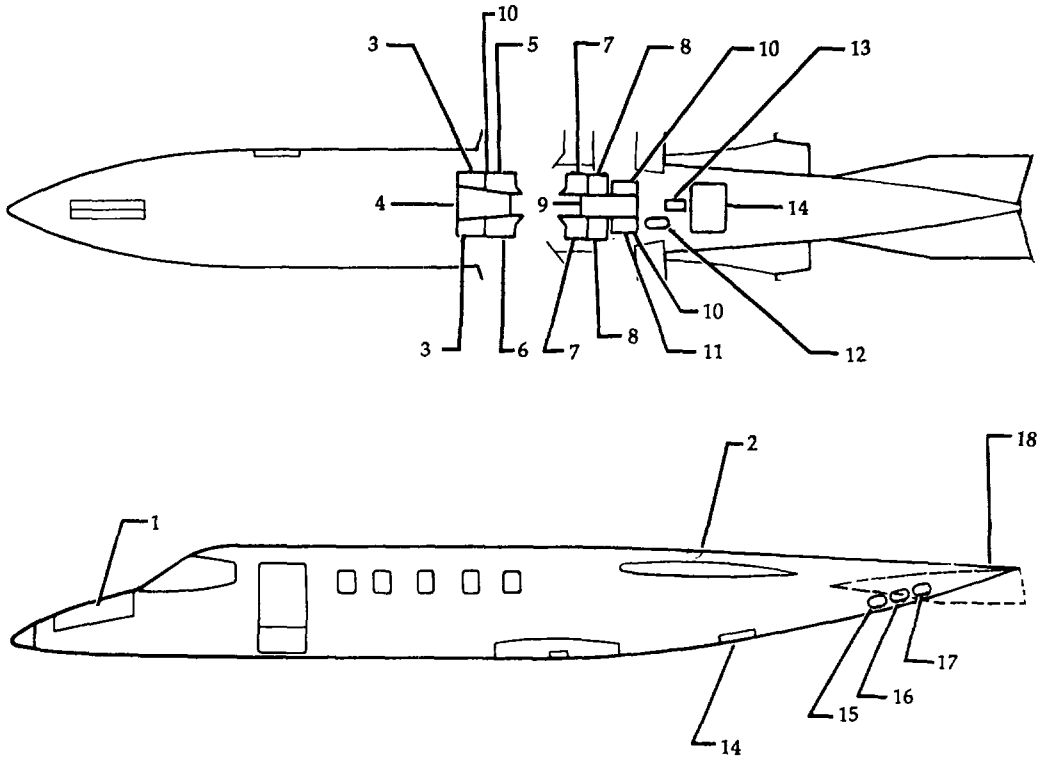


(VIEW LOOKING FORWARD)
FRAME 25

(*Aircraft equipped with 36-Inch Door*)

(TYPICAL)

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 7 (Sheet 5 of 5)

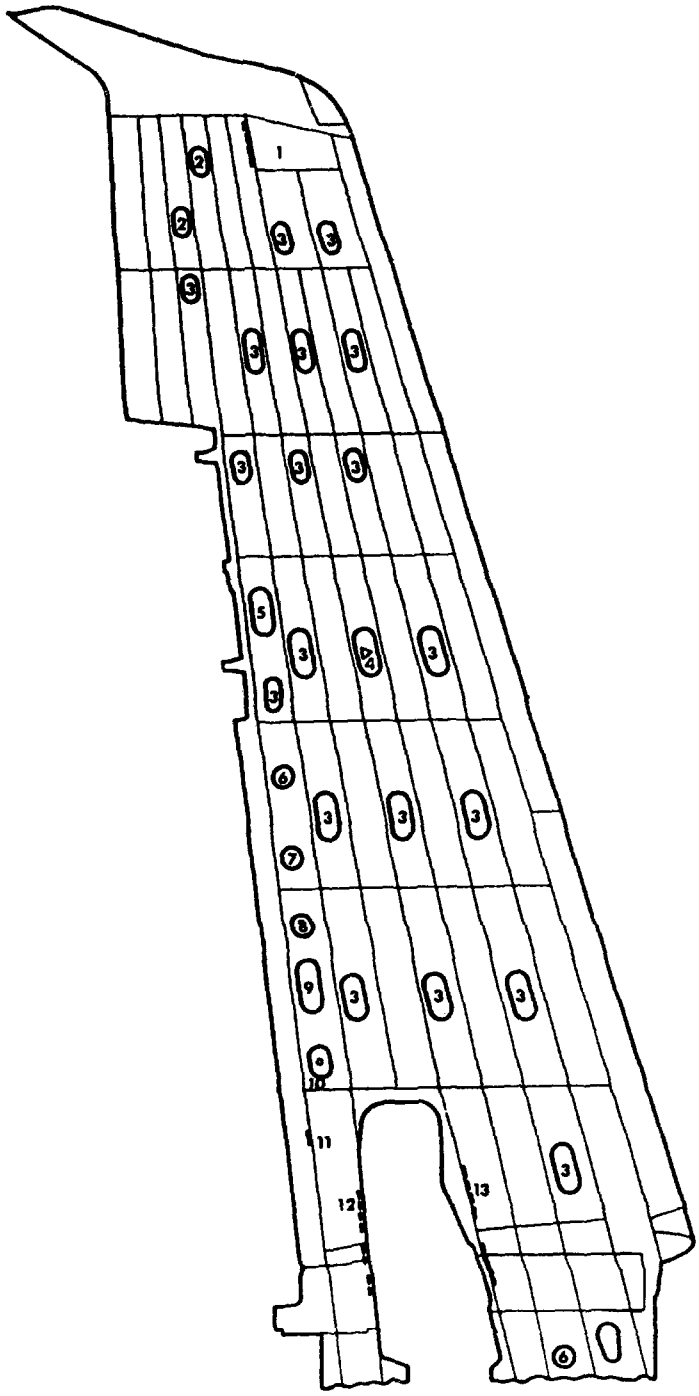


1. Oxygen Bottle (Optional), Avionics and Radio Equipment, Air Bottle and Alcohol Anti-Ice Tank
2. Fuselage Fuel Tank Probe
3. Hydraulic Lines and Electric Scavenge Pumps
4. Rudder and Elevator Cable Turnbuckles, Sump Drain Valve and Throttle Cables
5. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve, Standby Fuel Pump and Fuel Drain Valve
6. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain, Drain Valve, Standby Fuel Pump and Defuel Valve
7. Fuel Lines and Transfer Valve
8. Fuel and Hydraulic Lines and Aileron Turnbuckles
9. Fuel Lines, Fuel tank Drain Valve, Elevator, Aileron and Rudder Cables, aileron Sector and throttle Cables
10. Fuel Pump and Fuel Drain Valve
11. Fuel Drain Valve
12. Fuselage Fuel Tank Probe (Lower Fitting)
13. Fuel Vent Lines
14. Batteries, Electrical Components, Fuel Filters, Refrigeration Equipment, Hydraulic Components, Engine Fire Extinguishers and Throttle Cables
15. Rudder and Elevator Cables
16. Elevator Sector, Push-Pull Tubes, Elevator and Rudder Control Cables
17. Rudder Control Cables
18. Rudder Bellcrank, Primary Yaw Servo Sector, Bottom Rudder Hinge Point, Servo sector Cables and Rudder cables

(TYPICAL)

14-90C-4
14-90C-6

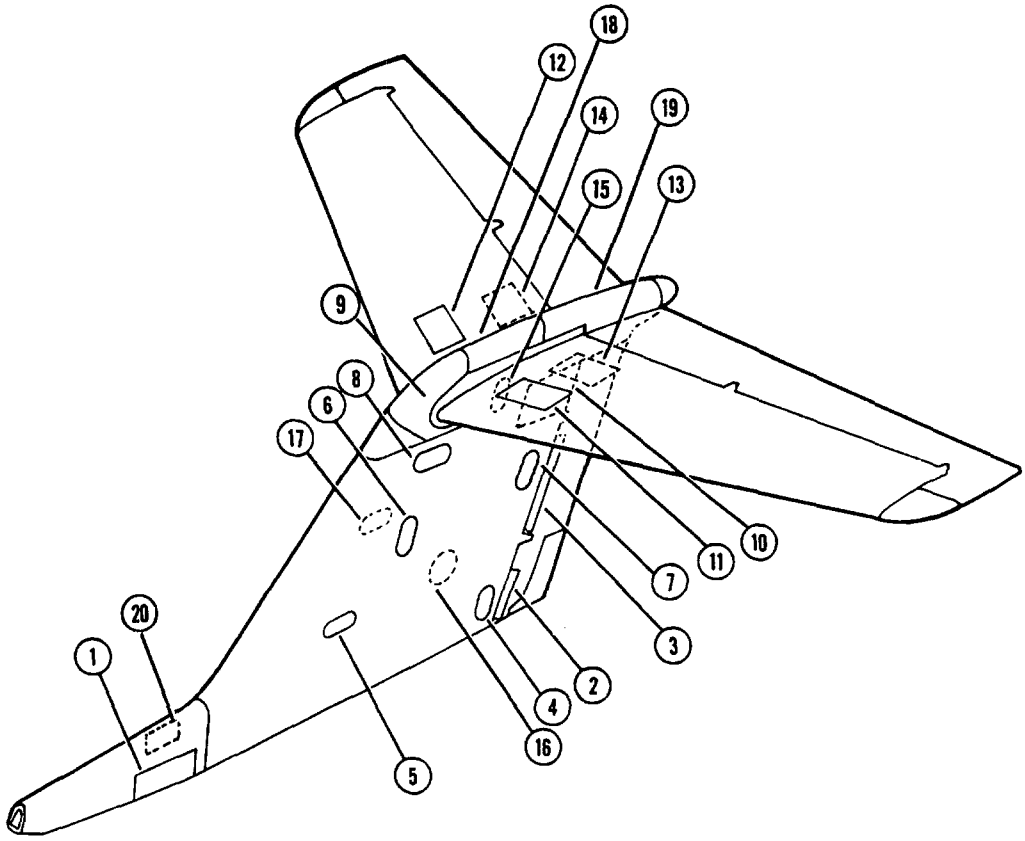
Access Doors and Panels - Fuselage & Empennage
Figure 8 (Sheet 1 of 5)



1. Flux Valve Installation
2. Electrical Connections
3. Wing Fuel Tank
4. Fuel Vent Plumbing
5. Aileron Controls and Follow-Ups
6. Fuel Probe Connector
7. Wing Access
8. Flap Actuator Attachment
9. Flap Sector and Spoiler Actuator
10. Fuel Vent Lines
11. Main Gear Aft Trunnion Pin
12. Spar #7
13. Spar #5

(TYPICAL)

Access Doors and Panels - Wing
Figure 8 (Sheet 2 of 5)



1. Oxygen Bottle Access (Optional)
2. Rudder Trim Tab Motor and Center Hinge Access
3. Rudder Balance Weight Access
4. Primary Yaw Servo and Capstan Access
5. Elevator Servo Access
6. Vertical Stabilizer Rib Inspection Access
7. Elevator Down Spring and Servo Cable Turnbuckle
8. Lower Horizontal Stabilizer Actuator Attach Point Access
9. Upper Horizontal Stabilizer Actuator Attach Point Access
10. Upper Rudder Attach Point Access

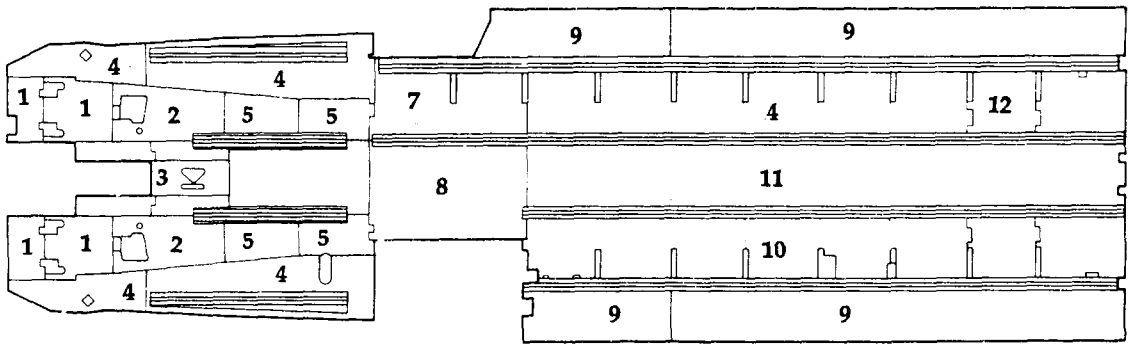
11. & 12. Leading Edge Hot Air Tube Access

13. & 14. Horizontal Stabilizer Hinge Pin Access

15. Pitch Capstan Pulley and Cable Access
16. Pitch Capstan Access
17. Vertical Stabilizer Rib Inspection Access
18. Access Cover
19. Stinger
20. Oxygen Regulator Access (Optional)

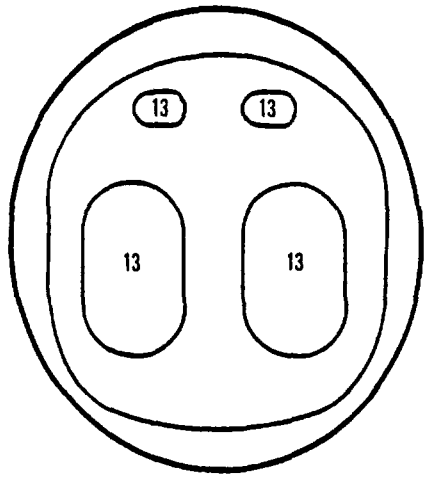
(TYPICAL)

Access Doors and Panels - Stabilizers
Figure 8 (Sheet 3 of 5)



FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines and Rudder Boost Force Sensors
3. Control Sector
4. Aux Defog Control Box, Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo (*31-002 thru 31-034*)
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables and Pulleys
9. Cabin Air Distribution Ducts
10. Aural Warning Conrol Unit, Hydraulic Lines and Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Squat Switch Relay Panel and Rudder Boost Control Box (*31-002 thru 31-034*)
13. Fuselage Fuel Cell



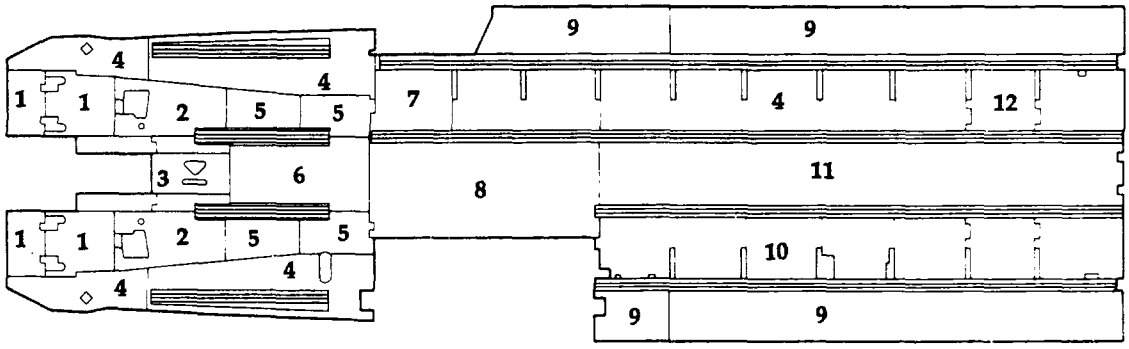
(VIEW LOOKING FORWARD)
FRAME 25

(*Aircraft equipped with 24-Inch Door*)

(TYPICAL)

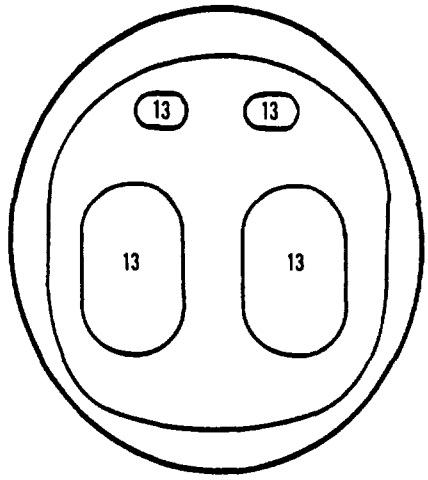
5-31A-1

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 8 (Sheet 4 of 5)



FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines and Rudder Boost Force Sensors
3. Control Sector
4. Aux Defog Control Box, Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo (*31-002 thru 31-034*)
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables and Pulleys
9. Cabin Air Distribution Ducts
10. Aural Warning Conrol Unit, Hydraulic Lines and Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Squat Switch Relay Panel and Rudder Boost Control Box (*31-002 thru 31-034*)
13. Fuselage Fuel Cell

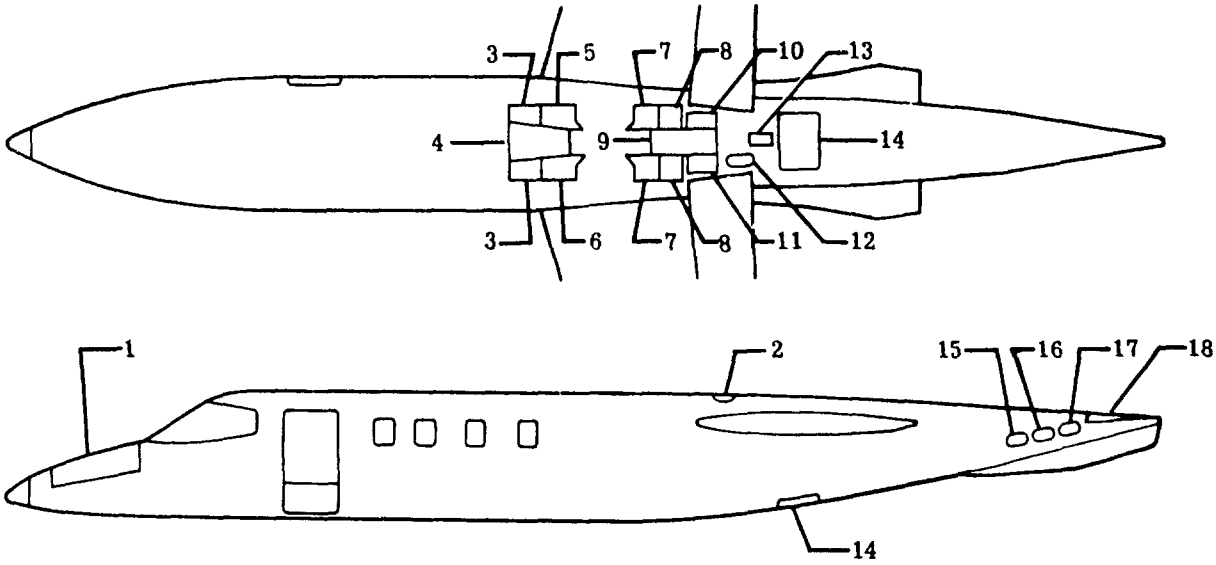


(VIEW LOOKING FORWARD)
FRAME 25

(*Aircraft equipped with 36-Inch Door*)

(TYPICAL)

Access Doors and Panels - Floorboards & Fuel Cell Panel
Figure 8 (Sheet 5 of 5)



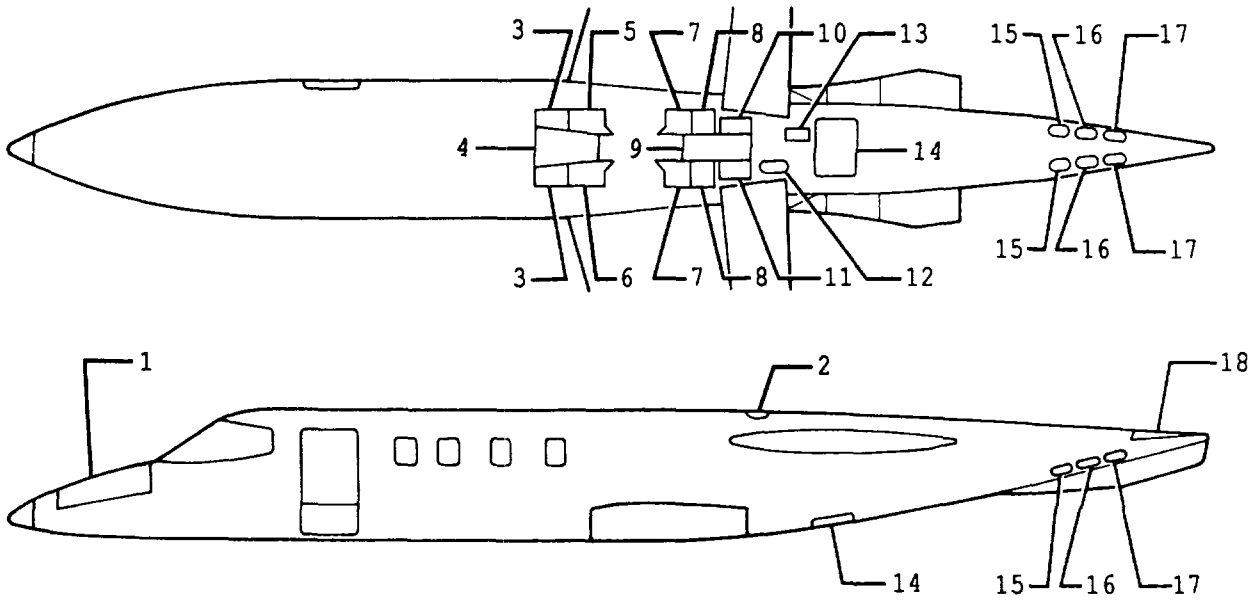
1. Electronic Equipment, Air Bottle, Oxygen Bottle (Optional) and Anti-Ice Tank
2. Fuselage Fuel Tank Probe
3. Hydraulic Lines
4. Rudder and Elevator Cable Turnbuckles, Sump DrainValve, Throttle Cables, and (if so equipped) Drag Chute Cable
5. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve, and Fuel Drain Valve
6. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain, Drain Valve and Defuel Valve
7. Fuel Lines and on *Model 36 Aircraft*, Transfer Valve
8. Wing Fuel Pressure Switch, Fuel and Hydraulic Lines, Aileron Cable Turnbuckles, and on *Model 35 Aircraft*, Fuel Transfer Valve
9. Fuel Lines, Fuel Tank Drain Valve, Elevator, Aileron and Rudder Cables, Aileron Sector, Throttle Cables, and (if so equipped) Drag Chute Cable
10. Fuel Pump and Fuel Drain Valve
11. Fuel Drain Valve
12. Fuselage Fuel Tank Probe (Lower Fitting)
13. Fuel Vent Lines
14. Batteries, Electrical Components, Fuel Filters, Refrigeration Equipment, Hydraulic Components, Engine Fire Extinguishers, Secondary Yaw Servo and Throttle Cables
15. Rudder and Elevator Cables
16. Elevator Sector, Push-Pull Tubes, Elevator, and Rudder Control Cables
17. Rudder Control Cables
18. Rudder Bellcrank, Primary Yaw Servo Sector, Bottom Rudder Hinge Point, Servo Sector Cables and Rudder Cables

(*Aircraft 35-002 thru 35-646, and 36-002 thru 36-058*)

(TYPICAL)

14-109C

Access Doors and Panels - Fuselage & Empennage
Figure 9 (Sheet 1 of 6)



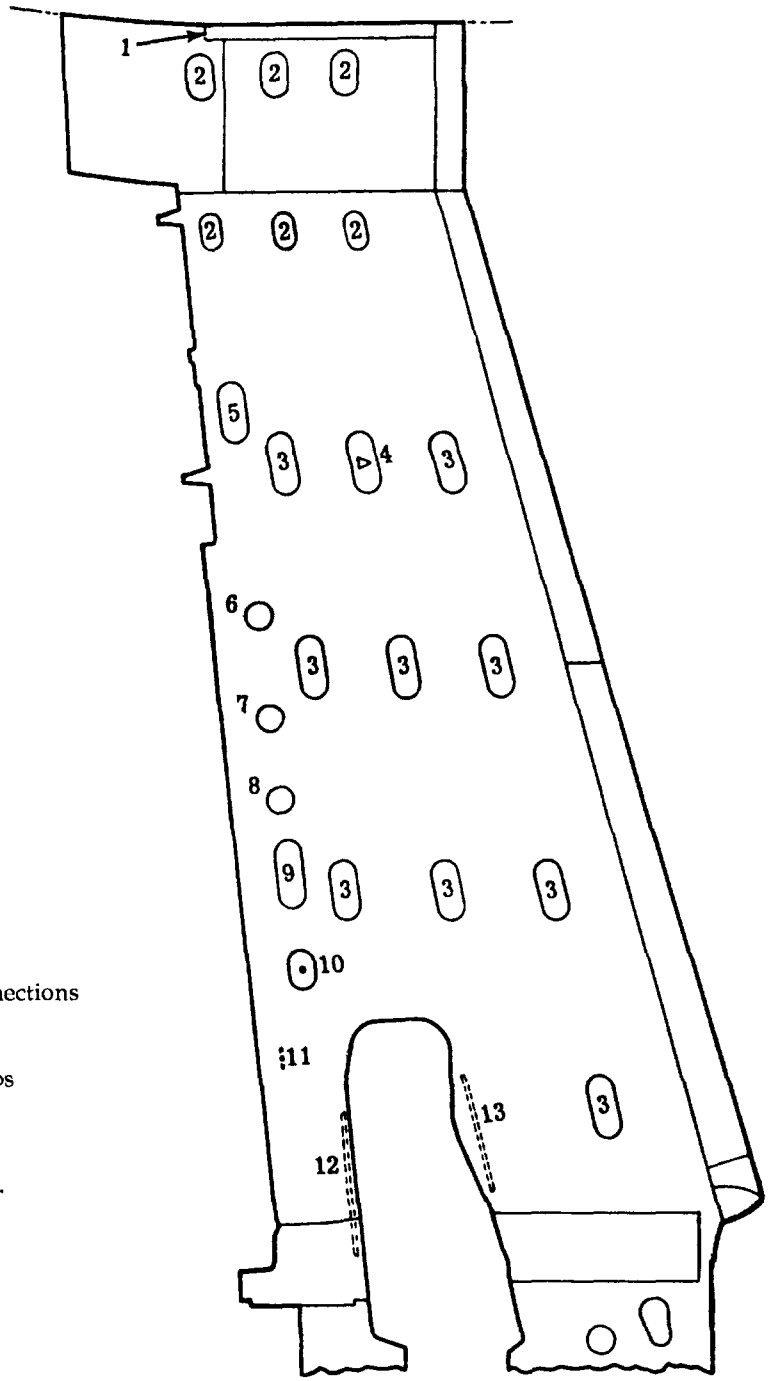
1. Electronic Equipment, Air Bottle, Oxygen Bottle (Optional) and Anti-Ice Tank
2. Fuselage Fuel Tank Probe
3. Hydraulic Lines
4. Rudder and Elevator Cable Turnbuckles, Sump DrainValve, Throttle Cables, and (if so equipped) Drag Chute Cable
5. Fuel Crossflow Shutoff Valve, Hydraulic Lines, Pneumatic Lines, Jet Pump, Fuel Check Valve, and Fuel Drain Valve
6. Fuel Plumbing, Hydraulic Lines, Wing Tank Drain, Drain Valve and Defuel Valve
7. Fuel Lines and on *Model 36 Aircraft*, Transfer Valve
8. Wing Fuel Pressure Switch, Fuel and Hydraulic Lines, Aileron Cable Turnbuckles, and on *Model 35 Aircraft*, Fuel Transfer Valve
9. Fuel Lines, Fuel Tank Drain Valve, Elevator, Aileron and Rudder Cables, Aileron Sector, Throttle Cables, and (if so equipped) Drag Chute Cable
10. Fuel Pump and Fuel Drain Valve
11. Fuel Drain Valve
12. Fuselage Fuel Tank Probe (Lower Fitting)
13. Fuel Vent Lines
14. Batteries, Electrical Components, Fuel Filters, Refrigeration Equipment, Hydraulic Components, Engine Fire Extinguishers, Secondary Yaw Servo and Throttle Cables
15. Rudder and Elevator Cables
16. Elevator Sector, Push-Pull Tubes, Elevator, and Rudder Control Cables
17. Rudder Control Cables
18. Rudder Bellcrank, Primary Yaw Servo Sector, Bottom Rudder Hinge Point, Servo Sector Cables and Rudder Cables

(Aircraft 35-647 and Subsequent, and 36-059 and Subsequent)

(TYPICAL)

14-109C-1

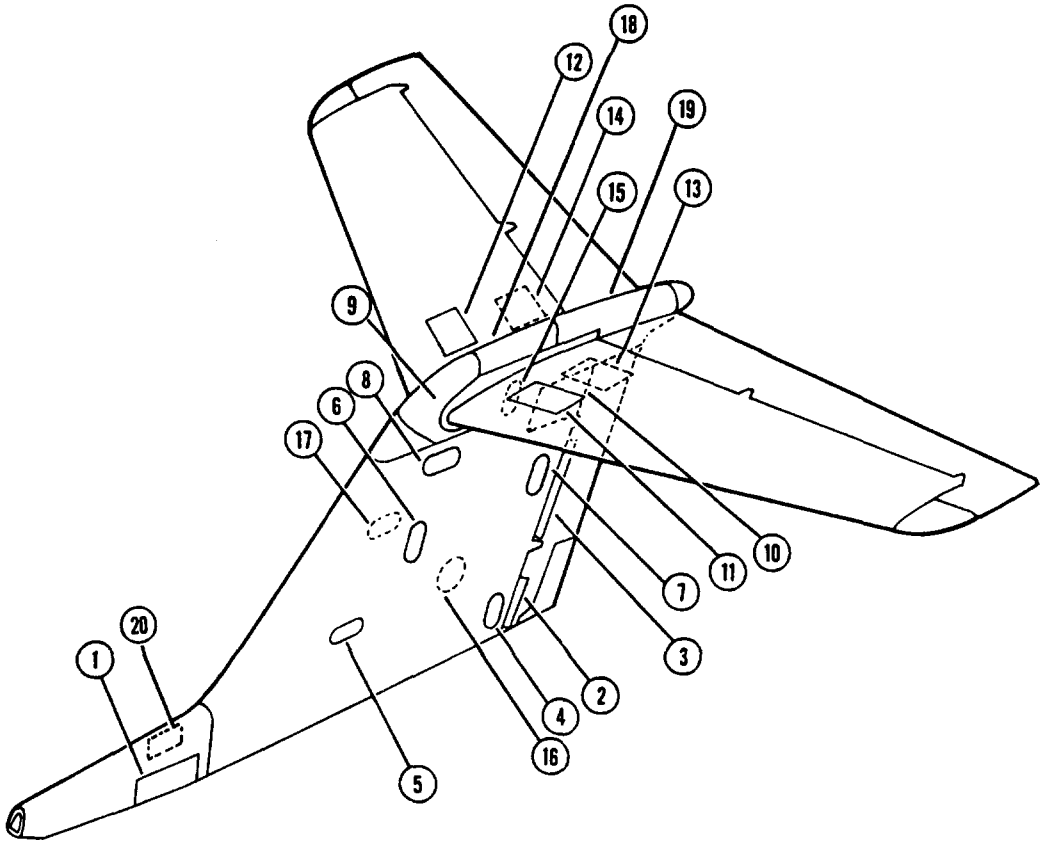
Access Doors and Panels - Fuselage & Empennage
Figure 9 (Sheet 2 of 6)



1. Tip Tank Attach Fittings
2. Wing Tip Fuel & Electrical Connections
3. Wing Fuel Tank
4. Fuel Vent Plumbing
5. Aileron Controls and Follow-Ups
6. Fuel Probe Connector
7. Wing Access
8. Flap Actuator Attachment
9. Flap Sector and Spoiler Actuator
10. Fuel Vent Lines
11. Main Gear Aft Trunnion Pin
12. Spar #7
13. Spar #5

(TYPICAL)

Access Doors and Panels - Wing
Figure 9 (Sheet 3 of 6)

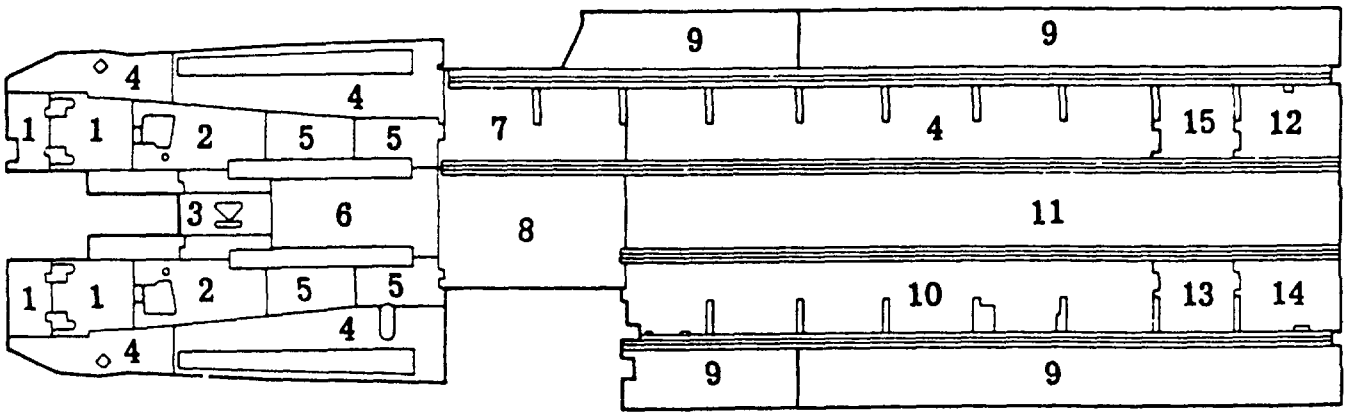


1. Oxygen Bottle Access (Optional)
2. Rudder Trim Tab Motor and Center Hinge Access
3. Rudder Balance Weight Access
4. Primary Yaw Servo and Capstan Access
5. Elevator Servo Access
6. Vertical Stabilizer Rib Inspection Access
7. Elevator Down Spring and Servo Cable Turnbuckle
8. Lower Horizontal Stabilizer Actuator Attach Point Access
9. Upper Horizontal Stabilizer Actuator Attach Point Access
10. Upper Rudder Attach Point Access
11. & 12. Leading Edge Hot Air Tube Access
13. & 14. Horizontal Stabilizer Hinge Pin Access
15. Pitch Capstan Pulley and Cable Access
16. Pitch Capstan Access
17. Vertical Stabilizer Rib Inspection Access
18. Access Cover
19. Stinger
20. Oxygen Regulator Access (Optional)

(TYPICAL)

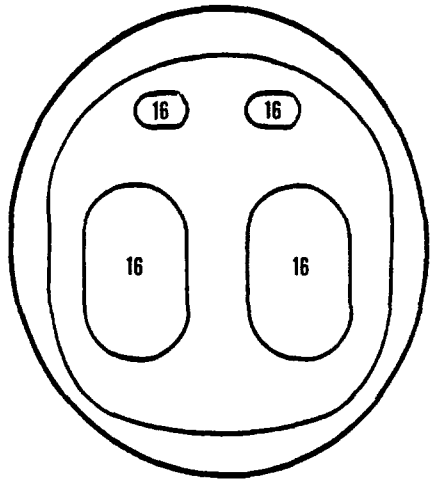
5-31A-1

Access Doors and Panels - Stabilizers
Figure 9 (Sheet 4 of 6)



FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines and Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Aural Warning Control Unit
13. Mach Trim Computer
14. Spoiler Computer
15. Squat Switch Relay Panel
16. Fuselage Fuel Cell

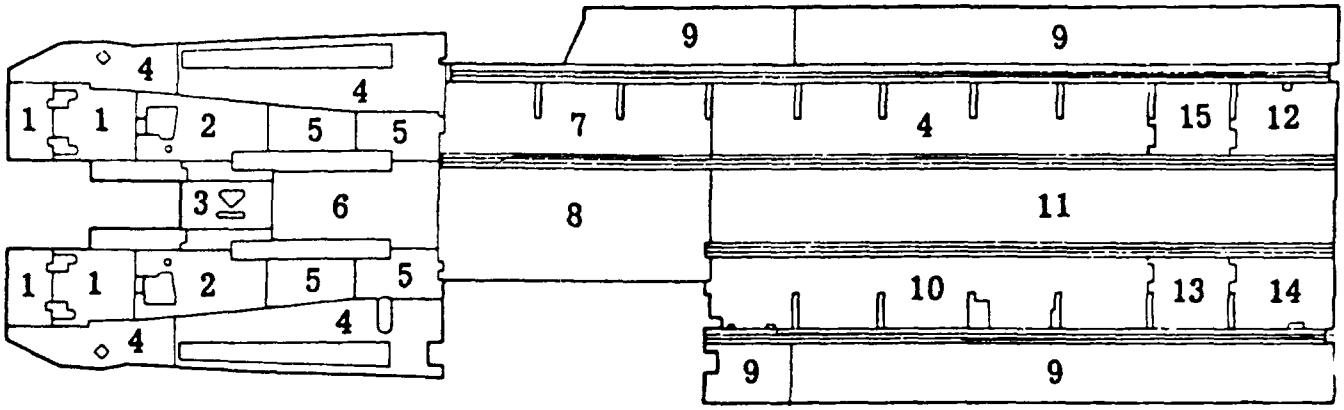


(VIEW LOOKING FORWARD)
FRAME 25

(*Aircraft equipped with 24-Inch Door*)

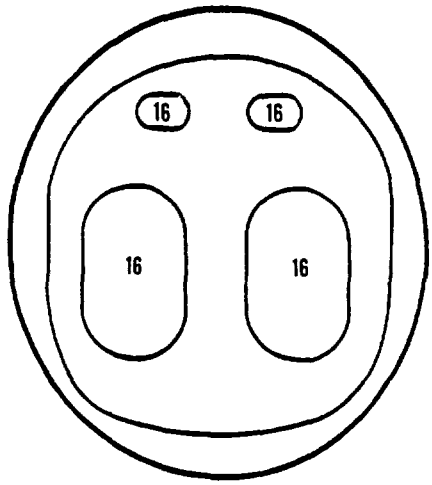
(TYPICAL)

Access Doors and Panels - Fuselage
Figure 9 (Sheet 5 of 6)



FLOORBOARDS AND INNER SKIN

1. Brake Valve and Rudder Pedal Linkage
2. Control Cables, Pulleys and Hydraulic Lines
3. Control Sector
4. Hydraulic Lines and Air Ducts
5. Brake System Shuttle Valves and Hydraulic Lines
6. Control Cables, Pulleys and Roll Servo
7. Parking Brake Valves and Hydraulic Lines
8. Control Cables, Pulleys and Aileron Rudder Interconnect
9. Cabin Air Distribution Ducts
10. Hydraulic Lines and Emergency Air Lines
11. Control Cables, Pulleys and Anti-Collision Beacon
12. Aural Warning Control Unit
13. Mach Trim Computer
14. Spoiler Computer
15. Squat Switch Relay Panel
16. Fuselage Fuel Cell



(VIEW LOOKING FORWARD)
FRAME 25

(*Aircraft equipped with 36-Inch Door*)

(TYPICAL)

Access Doors and Panels - Fuselage
Figure 9 (Sheet 6 of 6)

INVESTIGATION AND AERODYNAMIC SMOOTHNESS - STRUCTURAL IDENTIFICATION

1. INVESTIGATION
   A. The primary structure of an aircraft is designed to resist variable forces imposed upon it in operation. The structure must distribute these forces to the principal structural strength members of the wing and fuselage. When a member has been damaged, a complete and thorough inspection must be made. This inspection should include the damaged structural member and the adjacent or attaching members. It is possible that the damaging force might have been transmitted over the surrounding structure, causing secondary damage in areas other than the primary damage area. Should the secondary damage not be discovered, forces distributed through the structure during normal aircraft operations may cause this structure to fail. Careful investigation must be made of all structure across which the forces must travel, and parts must be checked for possible misalignment. Additionally, the use of X-ray and Eddy current inspections will further support the search for secondary damage. (Refer to the appropriate Learjet Non-Destructive Inspection [NDI] Manual.)

2. AIRFRAME AND MATERIALS INSPECTION
   A. Airframe Inspection
      (1) **Preliminary External Inspection**
      A great deal may be learned about the condition of the internal structure of an aircraft by a careful examination of the skin on the wings, stabilizers, and fuselage. Some indications might be buckle patterns on surface skin of stabilizers and along the sides, top, and bottom of fuselage. Loose, tipped, or sheared fasteners, and joggles or bulges in the skin at structural joints or where heavy fittings are attached, indicate that a thorough inspection of the underneath structure should be made. Inspect fairings and other nonstructural parts for tears, cracks, buckles, and misalignment. Any unusual appearance of these parts is reason for a close inspection of the structures they cover.

      Check also the fit of doors, covers, panels, etc. Anything unusual about their fit or alignment may indicate a warped or sprung structure, and is cause for inspection of that structure.

      When possible, actuate control surfaces, flaps, spoilers, etc. Observe these units closely throughout their travel. They should operate freely and without binding or chafing. Check the units in the zero or closed positions for proper alignment with adjacent members.

      (2) **Detailed Visual Inspection**
      Carefully inspect all areas adjacent to the obvious damage. Inspect forgings and other machined parts for cracks and for evidence of their having been moved. This can often be done by observing the paint around the edges, by tipped bolt or rivet heads, or by a slight space at the edge of faying surfaces. When possible, remove two bolts from a suspected fitting and examine bolts for evidence of shearing or bending. Check bolt holes for elongation.

      Inspect supporting structures for buckling, warpage and joggles. Check for sheared, loose, or tipped fasteners. Alignment with adjacent members is also important. Using a straightedge, check known flat areas such as spar webs, frame webs and bulkheads. Any deviation should be thoroughly investigated.

When an aircraft has been damaged, or damage is suspected, a close examination is justified for all areas where major components are joined or where heavy weights are supported. The principal areas of this nature, with their supporting structures, are as follows:

(a) Wing-to-fuselage attachments
(b) Vertical stabilizer attachments
(c) Rudder hinge
(d) Landing gear trunnions and actuator attach points
(e) Pylon and nacelle attachments
(f) Engine mounts

Continue inspection throughout disassembly and repair of aircraft. During this time, indications of unsuspected damage are often revealed. When new parts being installed do not fit properly, find out why. It may be because of damage that has been overlooked.

B. Overpressurization or Hard Landing Inspections

When an aircraft has been subjected to overloads from overpressurization or hard landing, a careful inspection of the structure should be made to determine whether damage was sustained. Inspection of the structure should be concentrated on finding fractures, or partial fractures (appearing as cracks), sheared or partially sheared fasteners, cracked or broken lugs (or other fittings), cracked or broken spars, longerons, etc.

(1) **Hard or Overweight Landings**

After every hard or overweight landing, inspect the following components and areas:

(a) Wing lower skin in landing gear rib area for skin buckles, fastener failures, security of landing gear rib and trunnion fittings.
(b) Wing-to-body fittings and supporting structure for security, fastener condition, and permanent deformation.
(c) Trailing edge region of wing for local deformation affecting normal usage of flaps and ailerons.
(d) Tip tank-to-wing attachment and wing extension attachment at WS 181 rib for security, fastener condition, and evidence of excessive load such as failures and/or permanent deformation. It is not necessary to remove access straps unless excessive fastener load or working is evident.
(e) Keel beam and attachments for security, fastener condition, permanent deformation and torque of primary tension joint bolts.
(f) Nose and main landing gear assemblies, and nose and main gear actuator assemblies for damage or deformation. Actuator attach points and support structure for security, fastener condition and permanent deformation.
(g) Engine mount castings, for permanent deformation or cracks and support structure, including pylon beams and beam-to-fuselage fittings, for security and fastener condition.

(2) **Severe Turbulence and/or Maneuvers**

After flight involving severe turbulence and/or maneuvers, inspect the following components and areas:

(a) Wing-to-body fittings and supporting structure for security, fastener condition, and permanent deformation.
(b) Trailing edge region of wing for local deformations affecting normal usage of flap and aileron.

(c) Tip tank-to-wing attachment for security, fastener condition and permanent deformation.
(d) Keel beam and attachments for security, fastener condition permanent deformation, and torque of primary tension joint bolts.
(e) Canted bulkheads and lower fin spar attachments in aft tailcone. Check for fastener security, permanent deformation of bulkheads and spar assemblies.
(f) Horizontal stabilizer hinge fittings, actuator and fittings, and stabilizer center section structure for security, permanent deformation, skin buckles, or other evidence of overload.
(g) Vertical stabilizer for permanent deformation, skin buckles, and security at primary attachments.
(h) Engine mount castings for permanent deformation or cracks and support structure, including pylon beams and beam-to-fuselage fittings, for security and fastener condition.

C. Overheat Inspections

Three methods are used in checking airplane structures after overheating: visual inspection for buckles, canning, and primer discoloration; hardness testing of questionable parts with a portable or a stationary hardness tester; and tension-testing of specimens taken from areas of doubtful values.

(1) **Buckles, Canning and Primer Discoloration Visual Inspection**

In the visual inspection of an airplane, the search for buckles or canning is primarily concerned with the possibly weakened condition of primary internal structures. This is especially important when the overheating has been in the wing area. It is possible that an area unaffected by the fire directly may have been bent enough to receive a permanent set.

Large (or thick) aluminum parts, such as forgings, are not as quickly affected by heat as are thinner and smaller components. However, when heat has been great enough to injure sheet and extruded parts, all heavy fittings in the area should be removed and hardness-tested. Similar parts from unaffected areas may be used for a comparison.

It is often necessary to remove sample disks from sheet-metal parts, except wing skins, in order to test them on a bench-type hardness tester. Disks for this purpose should be removed with a one-inch hole saw. If the parts are to be retained in use, make repairs as directed in the applicable chapter of this manual.

Access hole covers in the overheated area are excellent samples for hardness sampling. They also provide an easily replaceable part for destructive testing.

When tension bars from sheet-metal parts are taken for laboratory testing, the blanks removed should measure 1 x 7 inches. However, pieces measuring 1 x 5 inches are acceptable. They should be cut with the long edges in line with the grain whenever possible.

When parts or samples are sent to a laboratory for analysis, information as to the type and duration of the overheating should be included. Also, the part number, whether metal or alloy, grain direction, etc., should be included wherever determinable.

Determining the extent of overheat damage by primer comparison can be a good indication when used carefully. A clean sample of the primer known to be unaffected by heat is compared with primer in the heated area. The sample should be from the same general area of the structure in question. The suspected area must be free of dirt, oil, and smoke.

When exposed to about 300°F of heat for a few minutes, it darkens. Temperatures that discolor primers will change the physical properties of 2024-T4 and 7075-T6 alloys. The 7000 Series alloys that are already in the T6, or artificially aged, condition are softened and weakened. The 2024-T4 is artificially aged and hardened, until the temperature reaches 500°F; then, with increased heat, this metal also softens and weakens. When the temperature of 2024-T4 is raised to 300°F to 500°F for a short period under uncontrolled conditions, as is the case in an aircraft fire, the inherent corrosion-resisting properties are seriously affected.

Both 2024-T4 and 7000 Series alloys (T6 condition) that are of questionable value and should be subjected to more accurate methods of testing when the slightest discoloration of the primer is evident.

(2) **Hardness-Testing and Tension-Testing**

Reliable limits of correlation between hardness tests and tensile tests have been established for the 7000 Series aluminum alloys. Materials that meet the following minimum Rockwell "B" scale reading may be considered acceptable:

(a) 7075-T6 - R_B 88 (min)

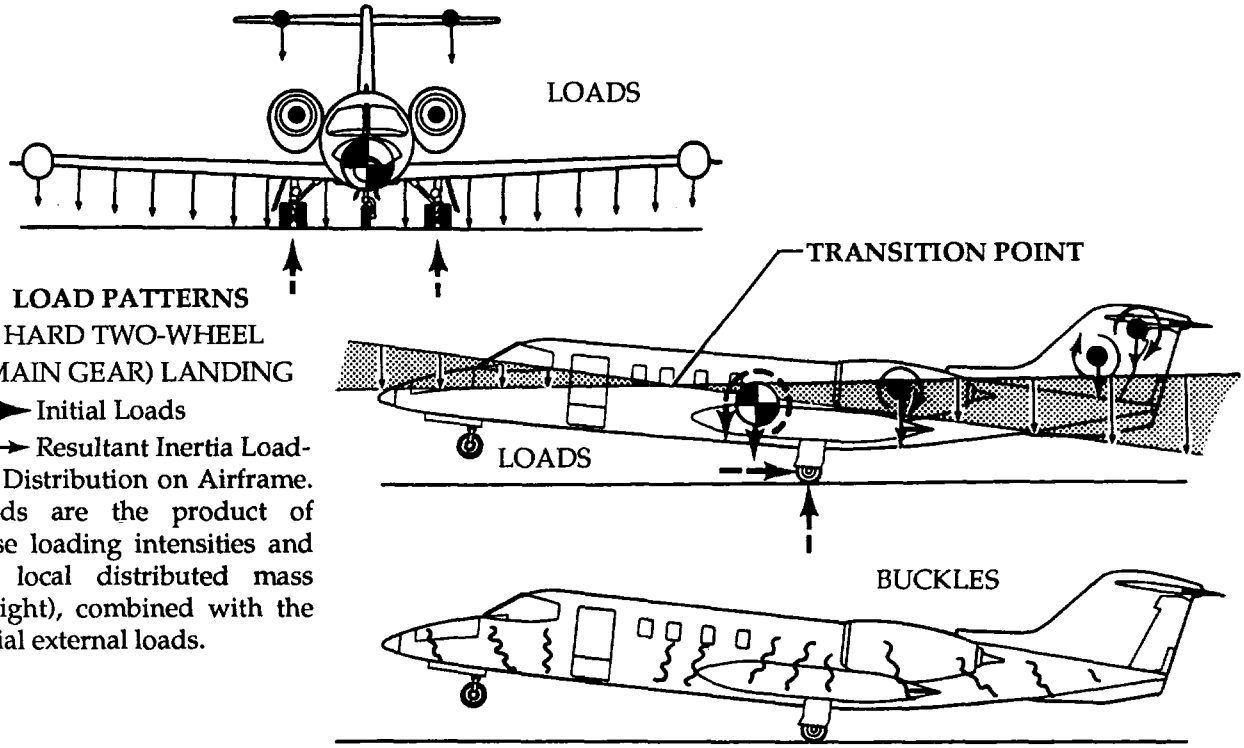
Material that falls below the minimum should be replaced, or specimens should be removed from the areas with the lowest Rockwell readings and sent to a laboratory for tension tests.

Hardness test readings are not accurate indications of heat damage on 2024-T4 because of the corrosion factor. A quick heating to 300°F may not raise the hardness number above normal but will affect the corrosion resistance. Therefore, if primer discoloration indicates that heat has affected the material, the material should be replaced or a specimen should be removed and sent to a laboratory for tension and corrosion-susceptibility tests.

If a decision is made to retain in use a section of 2024-T4 that has undergone slight mechanical change due to overheating, every effort should be made to protect the metal. Painted areas should be stripped, treated with phosphoric cleaner, chemical-film-treated, and repainted. Surfaces not normally painted should be treated with phosphoric cleaner.

D. Structural Joint Wear Inspection

Wear allowances and repair data for fittings, forgings, and structural joints are shown in 51-71-00.



LOAD PATTERNS
HARD TWO-WHEEL
(MAIN GEAR) LANDING

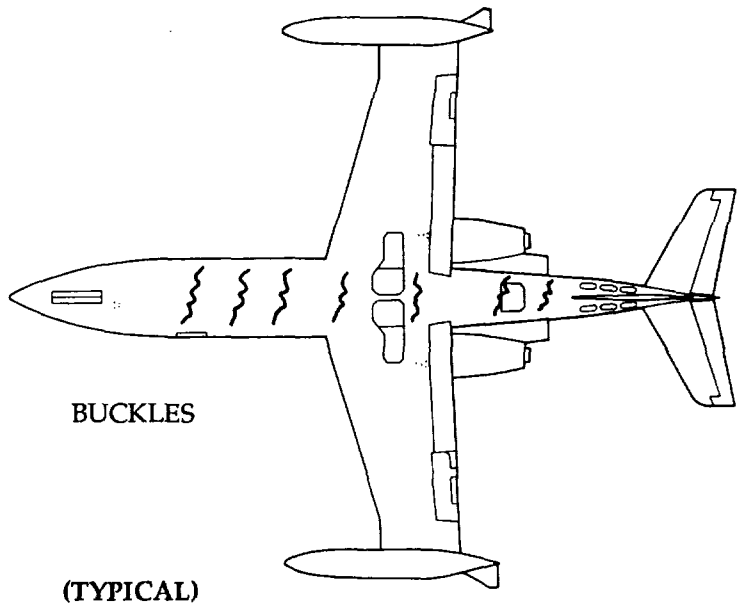
- - → Initial Loads

——→ Resultant Inertia Loading Distribution on Airframe. Loads are the product of these loading intensities and the local distributed mass (weight), combined with the initial external loads.

BUCKLE PATTERNS
HARD TWO-WHEEL
(MAIN GEAR) LANDING

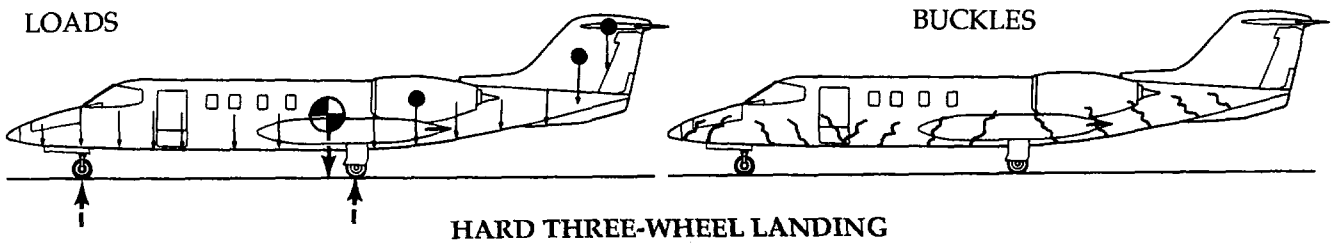
NOTES:

- Buckle patterns shown in the diagrams indicate the directions of the buckles that would tend to form in the skin as a result of the loads imposed in a hard two-wheel landing.
- Location of transition of buckle direction matches loading transition point. This point may be in a different location for each landing, depending on gross weight, CG location, sinking speed, angle from horizontal, etc.
- Buckles shown are for fuselage only.

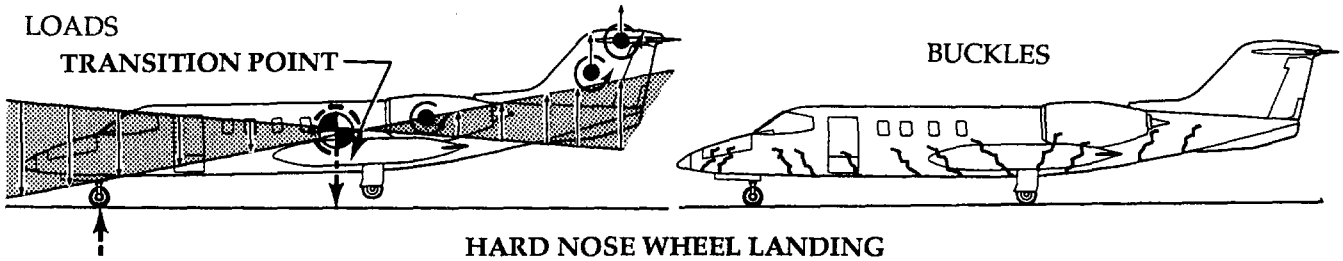


(TYPICAL)

Load and Buckle Patterns
Figure 1 (Sheet 1 of 3)



HARD THREE-WHEEL LANDING



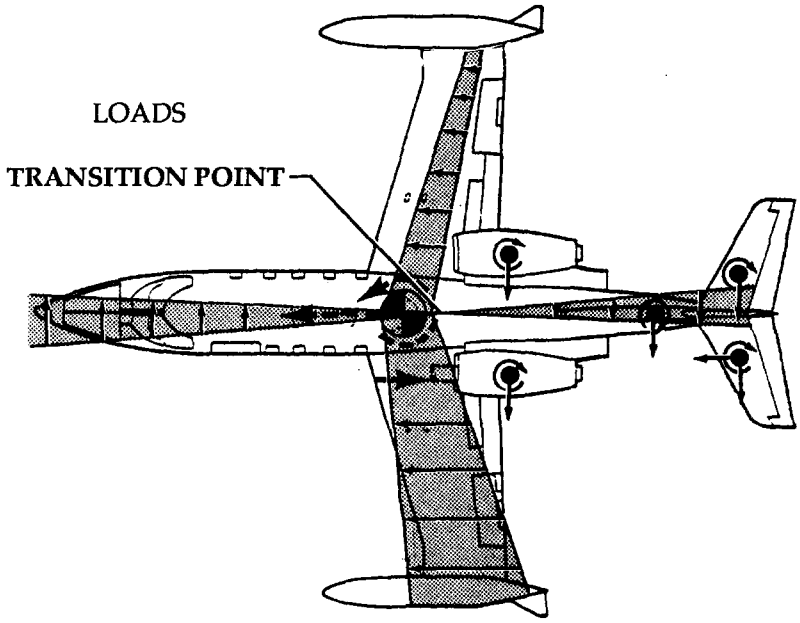
HARD NOSE WHEEL LANDING

➡ Initial Loads

➡ Resultant Inertia Loading Distribution on Airframe. Loads are the product of these loading intensities and the local distributed mass (weight), combined with the initial external loads.

NOTES:

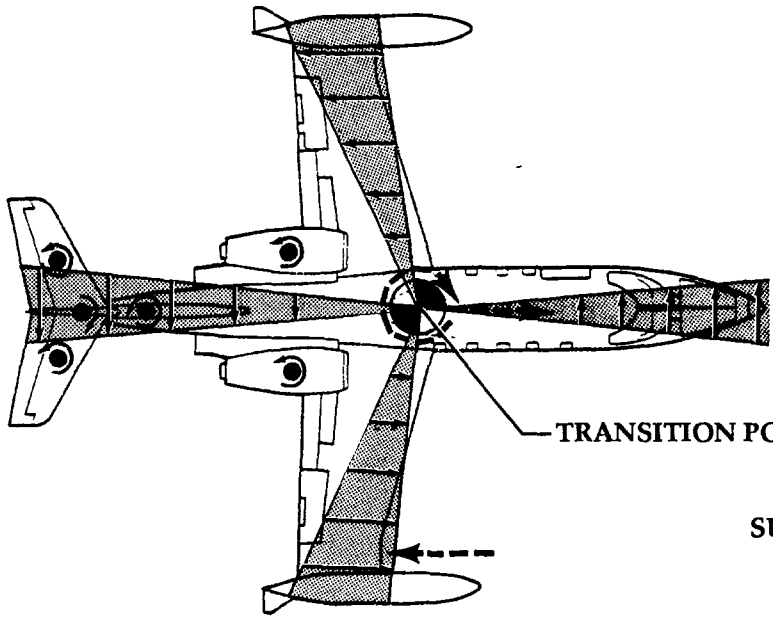
- Buckle patterns shown in the diagrams indicate the directions of the buckles that would tend to form in the skin as a result of the loads imposed in the landing configuration shown.
- Location of transition of buckle direction matches loading transition point. This point may be in a different location for each landing, depending on gross weight, CG location, sinking speed, angle from horizontal, etc.
- Buckles shown are for fuselage only.



SUDDEN STOP - LEFT WHEEL
(Right Wheel Opposite)

(TYPICAL)

Load and Buckle Patterns
Figure 1 (Sheet 2 of 3)

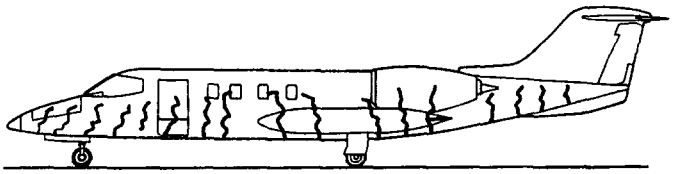


- - → Initial Loads

——→ Resultant Inertia Loading Distribution on Airframe. Loads are the product of these loading intensities and the local distributed mass (weight), combined with the initial external loads.

SUDDEN STOP - RIGHT WING
(Left Wing Opposite)

SIDE TOW TOWARD READER -
SIDE DRIFT TOWARD READER -
YAW (TAIL AWAY FROM READER)

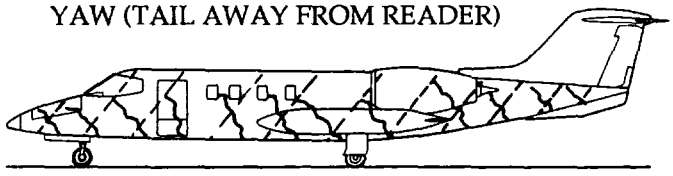


COMPRESSION BUCKLES - ONE SIDE ONLY

NOTES:

- Buckle patterns shown in the diagrams indicate the directions of the buckles that would tend to form in the skin as a result of the loads imposed under the conditions given.
- Buckles may be of either type shown, or a combination of both.
- Buckles shown are for fuselage only.

SIDE TOW TOWARD READER -
YAW (TAIL AWAY FROM READER)



DIAGONAL SHEAR BUCKLES ON BOTH SIDES BUT OPPOSITE IN DIRECTION

SIDE DRIFT LANDING AND SIDE TOW

(TYPICAL)

Load and Buckle Patterns
Figure 1 (Sheet 3 of 3)

INVESTIGATION AND AERODYNAMIC SMOOTHNESS - ALLOWABLE DAMAGE

1. DAMAGE CLASSIFICATIONS
   A. Allowable damage is damage that can be permitted to be "as is", or may be corrected by a simple procedure, without restricting flight. In most cases, a corrective action must be taken to keep the damage from spreading. Frequent inspection of areas with allowable damage is necessary to ensure the damage does not spread. Limitations regarding the extent of allowable damage vary in different locations throughout the airplane. These limitations are shown on the illustrations of allowable damage for the various components.
   B. One-time flight damage is damage that can be left "as is" or requires only minor repairs to allow the aircraft to be flown to a repair facility.
   C. Repairable damage is damage that may be repaired so as to make the strength of the repaired structure equal to, or greater than, that required to maintain the structural capability of the airplane.
   D. Damage requiring replacement of parts including any damaged component that must be replaced when the location or the extent of damage makes it impractical to repair. When a damaged component or part is replaced, care should be taken to avoid damage to adjacent or attaching structure.

2. CAUSES AND TYPES OF DAMAGE
   There are many causes and degrees of damage which may occur to an aircraft. However, for purposes of description, some of the causes are collision or impact, stress, fatigue, corrosion, erosion and overheat.
   A. Collision or impact damage varies from minor damage, such as a small hole or dent, to extensive damage, such as torn, crushed, or burned skin and structural members, and misalignment of the airplane. Damage such as this can occur at any point on the airplane.
   B. Stress damage generally consists of loosened, sheared, or popped fasteners, wrinkled skin or webs, and cracked or deformed structural members. Damage such as this is caused by abnormal stresses imposed upon the members.
   C. Fatigue damage generally consists of small cracks that are caused by vibration, "oil cans," and variable loads imposed on skin, fittings, and load-bearing members where fittings are attached. Damage of this type occurs more frequently as the operation time of the aircraft accumulates.
   D. Corrosion damage may be defined as the gradual chemical or electromechanical attack on a metal by atmosphere, moisture and other agents. The types of corrosive attack most commonly encountered are ordinary corrosion, resulting in a uniform deterioration or pitting attack on the surface; intergranular corrosion, resulting in a grain boundary attack; and stress corrosion and galvanic corrosion, resulting in the deterioration of the more active of two dissimilar metals in contact. Corrosion products from the deterioration of the more active metal will sometimes corrode the other dissimilar metal (for instance, magnesium and aluminum). Corrosion caused by foreign materials such as battery acid and fire-extinguishing agents may be encountered under certain conditions.

      NOTE: Monobromotrifluoromethane, which is used in the portable and engine fire extinguishers, is non-corrosive.

      (1) Ordinary corrosion may be recognized by a dulling or pitting of the surface, accompanied by white powdery deposits on aluminum and by a reddish rust coating on steel. Corrosion cannot always be detected by a visual examination alone, but may sometimes be discovered under paint where the paint falls off under pressure.

(2) Intergranular corrosion is corrosion occurring along the grain boundaries of the material resulting from a difference in corrosion (or electrochemical) potential between the grain boundary material and the matrix (or center of the grains). This corrosion cannot be readily recognized during a surface examination until actual failure of the material. This failure then shows up much as a crack might appear.

(3) Stress corrosion occurs as a result of the susceptibility of materials to intergranular corrosion combined with presence of internally or externally applied stresses such as residual stresses developed from quenching, welding, severe forming, or externally applied severe stress.

(4) Galvanic corrosion occurs in the presence of moisture when two different metals are in actual contact, an electric current flows from one metal to the other, resulting in corrosive attack on one of the materials. This is similar to the action that takes place within a common storage battery. In galvanic corrosion, the more active of the two dissimilar metals serves as the anode, the moisture becomes the electrolyte, and the less active metal acts as the cathode. The more active of the two metals suffers the corrosive attack.

(5) Corrosive Effects of Dry Chemical Powder (Sodium Bicarbonate). Dry chemical powder is a specially prepared grade of sodium bicarbonate. When sodium bicarbonate is heated, it decomposes and releases carbon dioxide gas and water vapor. The decomposed product is sodium carbonate (soda ash). In the dry state, sodium bicarbonate is harmless and sodium carbonate is relatively so. In the wet state (in solution with water), sodium bicarbonate is mildly corrosive to most aircraft metals, and sodium carbonate is extremely caustic and will rapidly attack most aircraft metals.

(6) Corrosive Effects of Mechanical Foam. The agent combined with water to produce foam is a harmless vegetable compound. The only corrosive action of this combination is that caused by the water used.

(7) Corrosive Effects of Monobromotrifluoromethane (CF_3 Br), and Carbon Dioxide. These fire-extinguishing agents evaporate rapidly and are relatively harmless. No cleanup is required following use of these agents.

E. Erosion damage is usually encountered on reinforced glass-fabric component such as antennas, radomes and wing tips. While this material is resistant to rain, weather, and aging, it may be eroded by hail, sharp objects, flying stones, or sharp blows.

F. Overheat damage is most likely to occur in the engine nacelle structure and skins. Overheat damage may be detected by skin and web buckles, canning and primer discoloration.

INVESTIGATION AND AERODYNAMIC SMOOTHNESS - REPAIR

1. AERODYNAMIC SMOOTHNESS

Modern aircraft specifications require that the aircraft exterior surfaces be of extremely smooth construction to obtain design performance. The structural repair person must keep this in mind when making repairs or changes. Figure 201 shows the areas that are most critical aerodynamically; however, smoothness of the entire aircraft surface area is a critical requirement from the performance standpoint. The seriousness of this condition is proportional to the airflow disturbance created. (Refer to 51-40-04 for classification of zone and fastener smoothness requirements.)

The prime considerations of aerodynamic smoothness are parasite drag (drag caused by skin friction and nonlifting surfaces of an aircraft) and the aerodynamic load distribution on the surface. Any repair or change that increases parasite drag will reduce the top speed of the aircraft. Also, range will be reduced, since more power, and thus more fuel, is required to maintain cruising speed.

Any change that disturbs the smooth flow of air over a critical surface will change the load on that surface, as well as increase the drag.

Any change in the airflow around the control surfaces is critical, since the control effectiveness may be affected.

Another problem that may arise is buffeting. Buffeting can be caused by airflow separation around an abrupt change, such as a nonflush patch, in the mold line.

Temporary (Nonflush) repairs are permitted in some areas designated "critical". (See Figure 201.) Temporary repairs must be replaced by permanent repairs at the earliest possible time.

Paste-type fillers, that cure to a hard-rubber-like consistency, are used to fill skin and door gaps, to blend overlapping surfaces, and in other similar conditions to achieve a satisfactory degree of aerodynamic smoothness. (Refer to 51-70-01.)

TEMPORARY REVISION NO. 51-1

MANUAL AFFECTED: Learjet 20/30 Series Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to 51-10-00, page 202, dated May 15/92, and retain until further notice.

REASON: To clarify and define Aerodynamically Critical Areas.

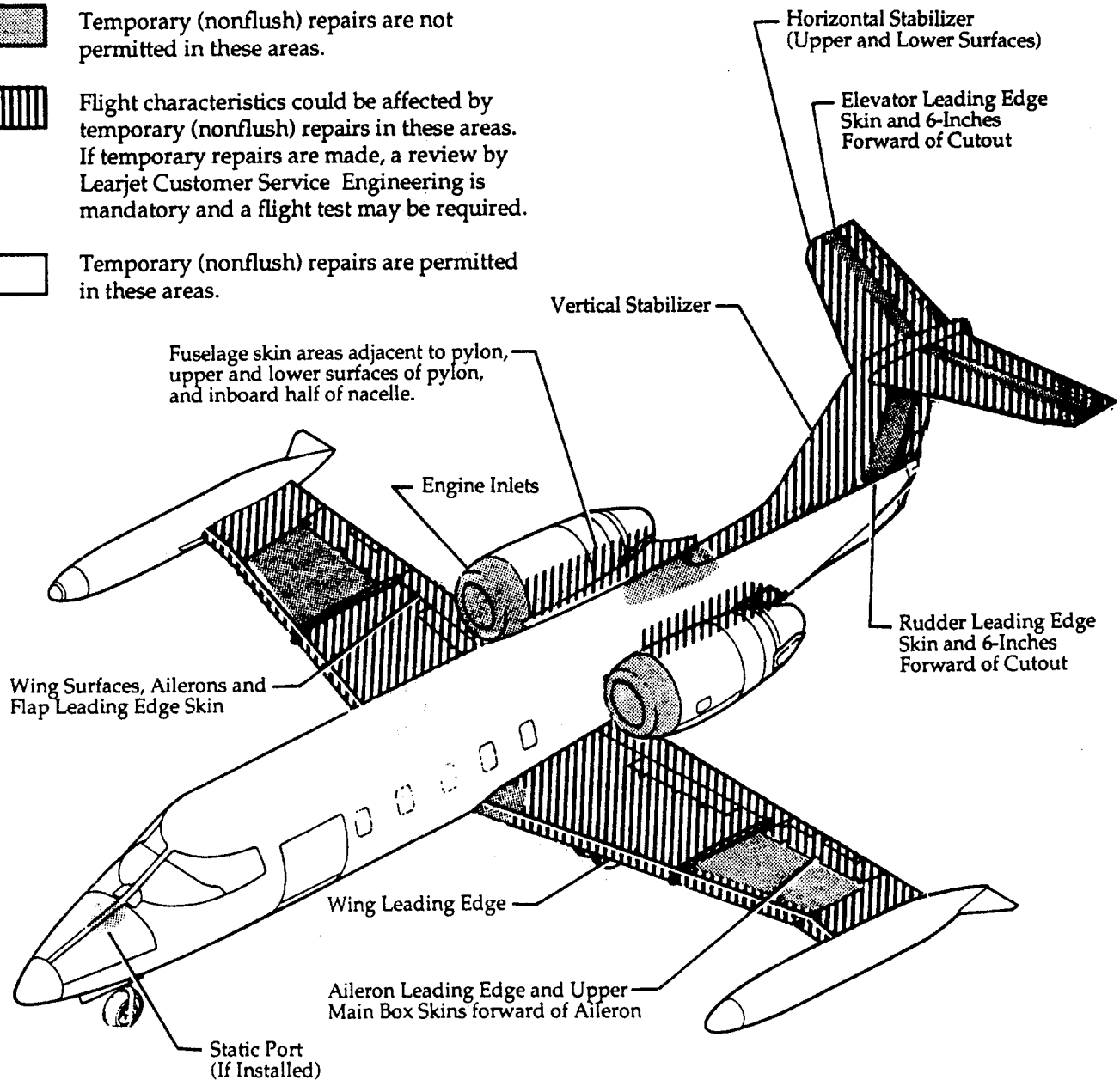
INSTRUCTIONS: Revise Figure 201, Sheets 1 & 2, as shown on enclosed pages.

CRITICAL AREAS

Temporary (nonflush) repairs are not permitted in these areas.

Flight characteristics could be affected by temporary (nonflush) repairs in these areas. If temporary repairs are made, a review by Learjet Customer Service Engineering is mandatory and a flight test may be required.

Temporary (nonflush) repairs are permitted in these areas.



Model 23/24/25/35/36 Series Aircraft

(TYPICAL)

4-110C-2

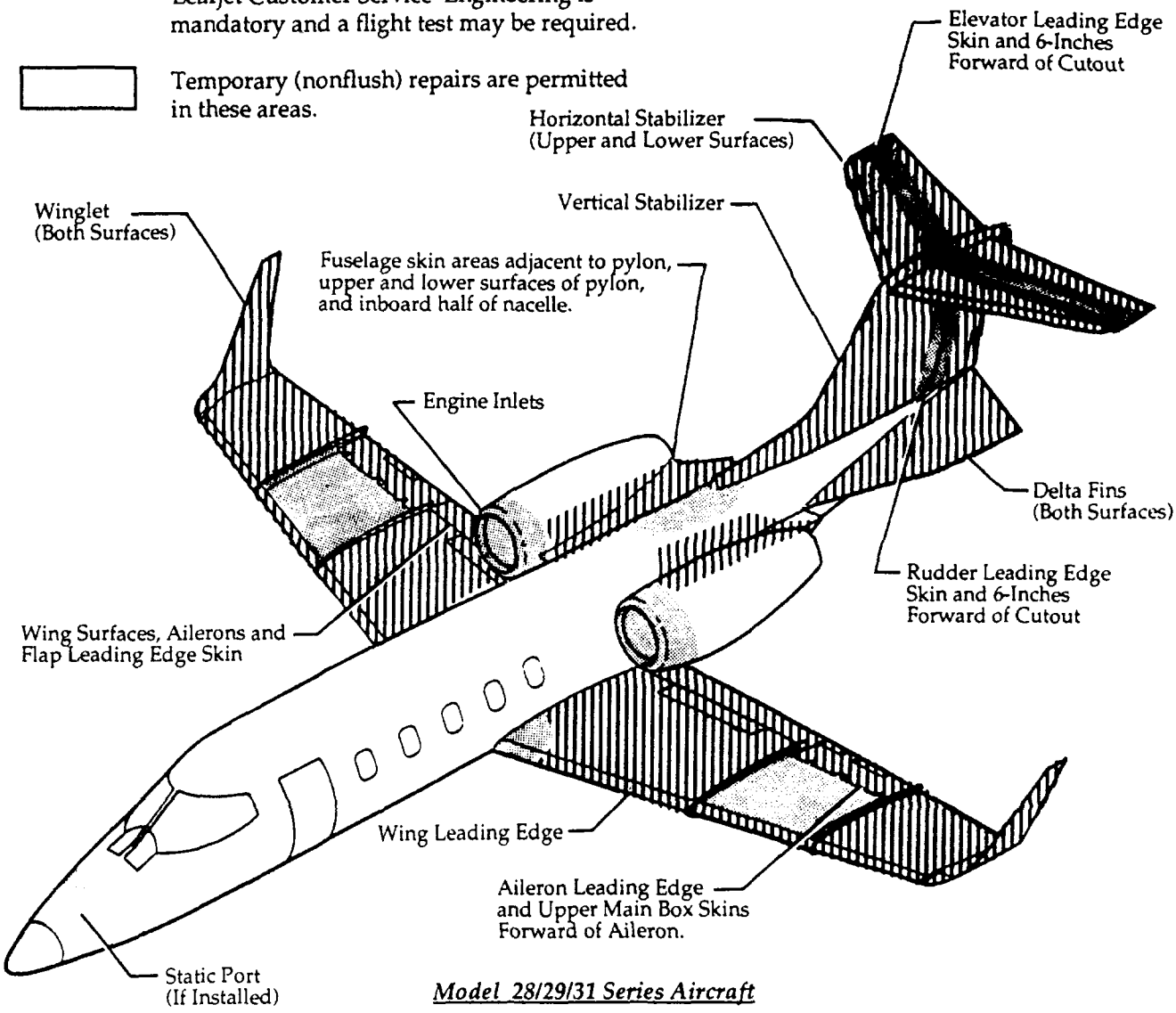
Aerodynamically Critical Areas
Figure 201 (Sheet 1 of 2)

CRITICAL AREAS

Temporary (nonflush) repairs are not permitted in these areas.

Flight characteristics could be affected by temporary (nonflush) repairs in these areas. If temporary repairs are made, a review by Learjet Customer Service Engineering is mandatory and a flight test may be required.

Temporary (nonflush) repairs are permitted in these areas.



Model 28/29/31 Series Aircraft

(TYPICAL)

Aerodynamically Critical Areas
Figure 201 (Sheet 2 of 2)

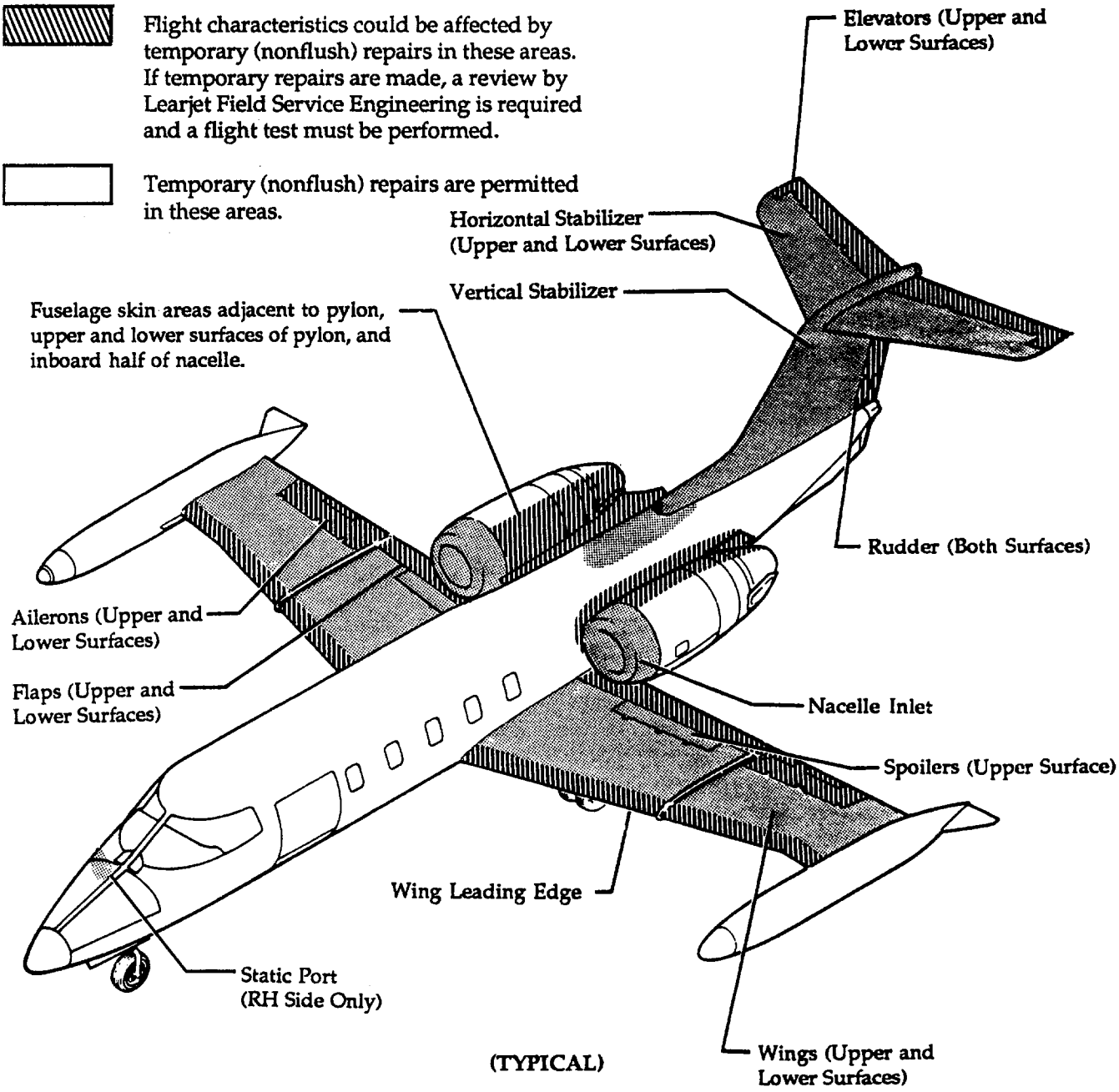
NOTE: Please see the TEMPORARY REVISION that revises this page.

CRITICAL AREAS

Temporary (nonflush) repairs are not permitted in these areas.

Flight characteristics could be affected by temporary (nonflush) repairs in these areas. If temporary repairs are made, a review by Learjet Field Service Engineering is required and a flight test must be performed.

Temporary (nonflush) repairs are permitted in these areas.



4-110C-2

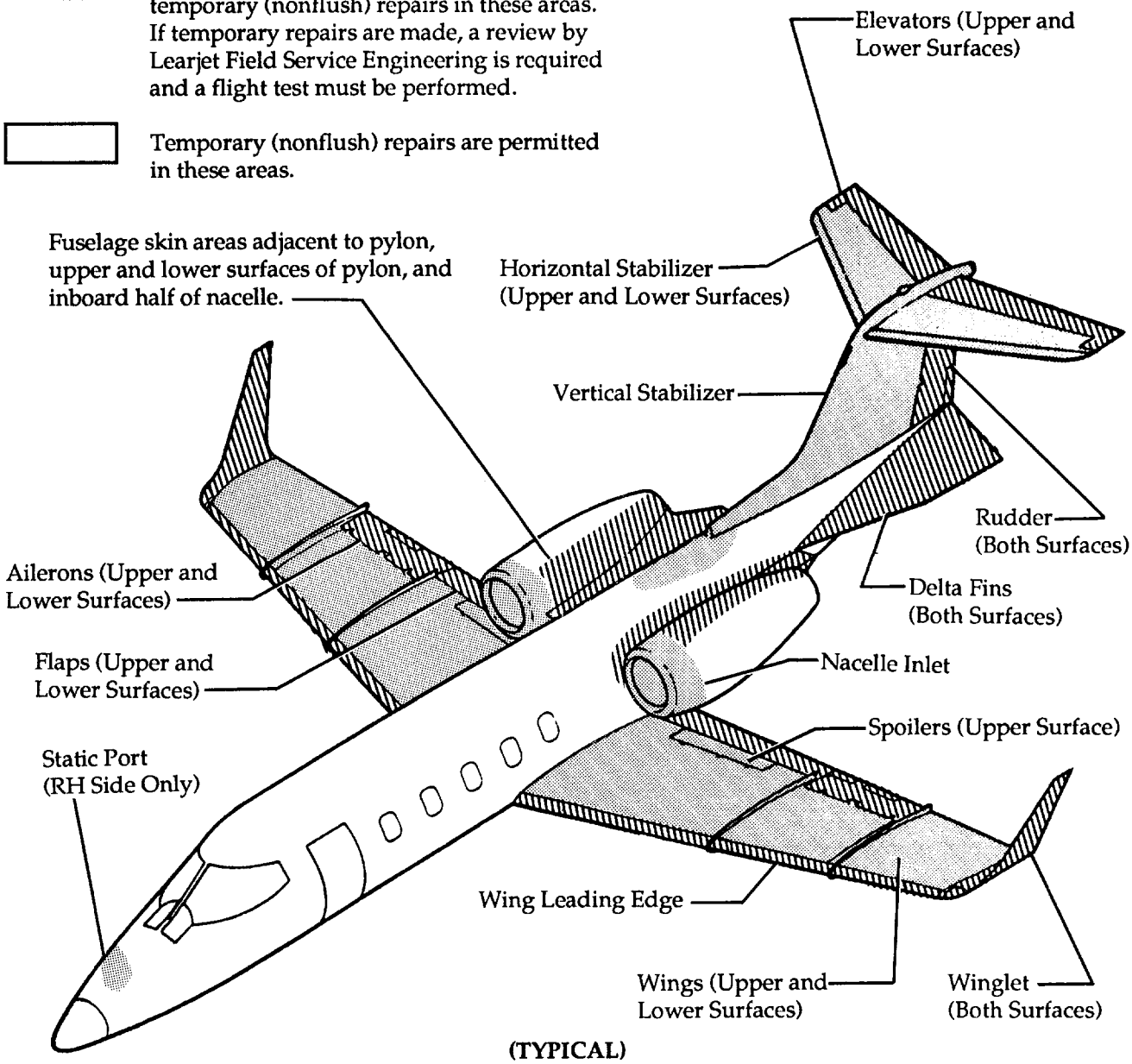
Aerodynamically Critical Areas
Figure 201 (Sheet 1 of 2)

CRITICAL AREAS

Temporary (nonflush) repairs are not permitted in these areas.

Flight characteristics could be affected by temporary (nonflush) repairs in these areas. If temporary repairs are made, a review by Learjet Field Service Engineering is required and a flight test must be performed.

Temporary (nonflush) repairs are permitted in these areas.



(TYPICAL)

Aerodynamically Critical Areas
Figure 201 (Sheet 2 of 2)

NOTE: Please see the **TEMPORARY REVISION** that revises this page.

MATERIALS - STRUCTURAL IDENTIFICATION

1. CONSTRUCTION MATERIALS

A. Most of the materials used in the construction and repair of this aircraft may be listed in the following categories: metals (aluminum alloys, steels, extrusions, and formed sections), transparent plastic, and fasteners.

(1) **Aluminum** - As a general-purpose material, 2024 aluminum alloy is used: where greater compressive strength is required, 2014-T6 aluminum alloy is used. 2014-T6 is used for die forgings. 6061 alloy is used in areas where welding is required.

(2) **Steel** -The principal steel alloy used in this aircraft is 4130 low-alloy steel.

(3) **Plastic** - Transparent plastics used in this aircraft for cabin windows is MIL-P-25690 stretched acrylic.

(4) **Fasteners** - The majority of the structure of this aircraft is assembled with conventional fixed and removable fasteners, such as standard aluminum alloy and steel rivets (driven and blind), screws, bolts, nuts, and quick-attach fasteners. For additional information concerning fasteners, refer to 51-40-00.

B. The following materials were used in the construction of the Learjet. Repair materials must conform to the referenced specifications, as applicable.

MATERIAL	SPECIFICATION	REMARKS
ALUMINUM BARS AND SHAPES		
2014-0 or 2014-T6511 aluminum alloy shape	Fed. Spec QQ-A-200/2	
2024-0 or 2024-T351 aluminum alloy shape	Fed. Spec QQ-A-225/6	Rolled bar. General purpose alloy. Use 2024-0 only if forming is too severe for 2024-T351. Heat-treat all 2024-0 parts to 2024-T42 condition after forming. Do not weld.
2024-0 or 2024-T3511 aluminum alloy bar or shape	Fed. Spec QQ-A-200/3	Extruded bar or shape. Use 2024-0 only if forming is too severe for 2024-T3511. Heat-treat all 2024-0 parts to 2024-T42 condition after forming. Do not weld.
6061-0 or 6061-T6 or T6511 aluminum alloy bar	Fed. Spec QQ-A-225/8	
ALUMINUM CASTINGS		
356-T6 aluminum alloy sand casting	Fed. Spec QQ-A-601	High-strength structural casting alloy. Heat-treatable and weldable.
ALUMINUM FORGINGS		
2014-T6 and 7175-T736	Fed. Spec QQ-A-367	High-strength heat-treated. Not weldable.
ALUMINUM SHEET AND PLATE		
2024-0 or 2024-T3 bare aluminum alloy sheet	Fed. Spec QQ-A-250/4	Gages from 0.010 to 0.250. Use 2024-0 when part cannot be made from 2024-T3. Heat-treat all 2024-0 parts to 2024-T42 condition after forming. Not weldable.
2024-0, 2024-T351 bare aluminum alloy plate	Fed. Spec QQ-A-250/4	Plate thicknesses from 0.250 to 3.000. Use 2024-0 when parts cannot be formed from 2024-T351. Heat-treat all 2024-0 parts to 2024-T42 condition after forming. Not weldable.
2024-0 and 2024-T3 clad aluminum alloy sheet	Fed. Spec QQ-A-250/5	Gages from 0.010 to 0.250. Use 2024-0 only when part cannot be made from 2024-T3. Heat-treat all 2024-0 parts to 2024-T42 condition after forming. May be spot- or seam-welded but not fusion-welded.

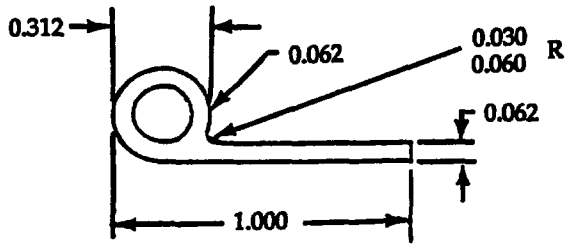
Construction Metals
Table 1 (Sheet 1 of 3)

MATERIAL	SPECIFICATION	REMARKS
ALUMINUM SHEET AND PLATE		
6061-0, 6061-T4 and 6061-T6 aluminum alloy sheet or plate	Fed. Spec QQ-A-250/11	Sheet gages from 0.010 to 0.250. Plate thicknesses from 0.250 to 3.000. Not to be used where other alloys are suitable. Use 6061-0 only if part cannot be made from 6061-T4. Use 6061-T4 only if part cannot be made from 6061-T6. Heat-treat 6061-0 and 6061-T4 to T6 condition when required. May be spot- or seam-welded in the treated condition, and fusion-welded if resultant annealed condition in area of weld is acceptable.
STEEL BARS		
4130 condition D, condition F	Spec MIL-S-6758	Low-alloy steel. Condition D (normalized) may be copper-brazed or fusion-welded, but not spot- or seam-welded. May be heat-treated.
4340 steel bar condition D	Spec MIL-S-5000	Low-allow steel. May be fusion-welded, but not spot- or seam-welded. May be heat treated.
STEEL SHEETS AND PLATES		
301 CRES sheet and plate, annealed and 1/2 hard	Spec MIL-S-5059	Sheet gages from 0.012 to 0.250. Plate thicknesses from 0.250 to 2.000. Unstabilized. Maximum service temperature is 700°F. Annealed material is nonmagnetic. May be spot- or seam-welded but not brazed or fusion-welded.
321 heat-resistant and CRES sheet and plate	Spec MIL-S-6721	Sheet gages from 0.012 to 0.250. Plate thicknesses from 0.150 to 1.000. Use Specification MIL-S-5059 if possible. Forms easily, annealed and non-magnetic. Not to be heat-treated. Can be spot- or seam-welded, fusion-welded, or silver-brazed.
4130 steel sheet and plate, condition A or N	Spec MIL-S-18729	Sheet gages from 0.020 to 0.250. Plate thicknesses from 0.250 to 1.000 low-alloy steel. May be copper-brazed or fusion-welded, but not spot- or seam-welded. May be heat-treated.

Construction Metals
Table 1 (Sheet 2 of 3)

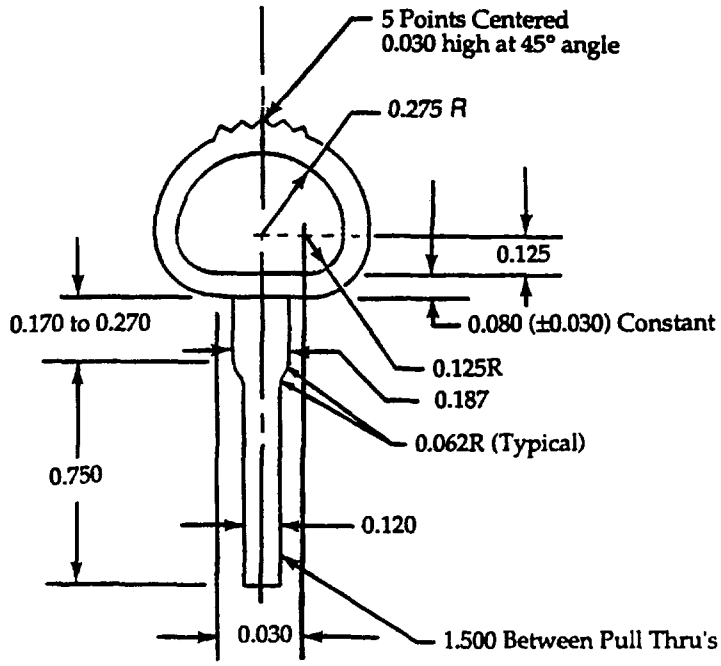
MATERIAL	SPECIFICATION	REMARKS
STEEL TUBING		
4130 steel tube	Spec MIL-T-6736	
BRONZE BAR AND CASTINGS		
Aluminum-bronze bar	AMS4640	Used in the manufacture of bushings and bearings.
STEEL CASTINGS		
17-4 PH and 15-5 PH	AMS5355 and AMS5357	Used in forward and aft engine mounts, and in spoiler actuator fittings.

Construction Metals
Table 1 (Sheet 3 of 3)



Material: High Tear Silicone Rubber Dow Corning Silastic 55U Silicone Rubber
Durometer: Shore A 40 to 50
Tolerances: 1/16 (±0.015)
5/16 (±0.015)
1.0 (±0.030)
Color: Grey

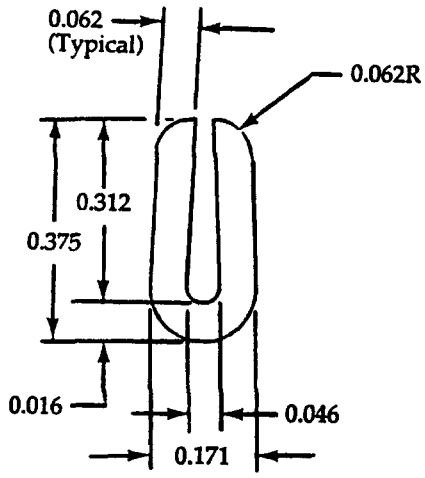
EXTRUDED SEAL S-306 (MOLDED)



Material: High Tear Silicone Rubber Dow Corning Silastic 55U Silicone Rubber
Durometer: Shore A 50 (±5)
Installation: No. 21 Hole Recommended
Color: Grey

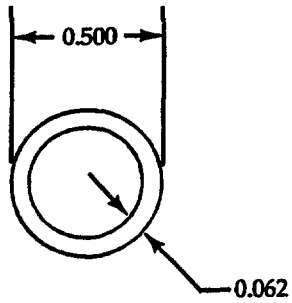
CABIN DOOR SEAL S-308 (MOLDED)

Extrusions and Formed Sections
Figure 1 (Sheet 1)



Extrusion Die No.: High Tear Silicone Rubber Dow Corning Silastic 55U Silicone Rubber
Material: Synthetic Rubber
Specification: MIL-S-6855, Class 4
Durometer: Shore A 60
Color: White

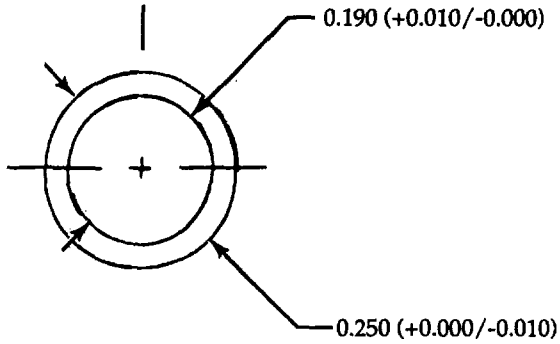
EXTRUDED RUBBER CHANNEL S-325 (MOLDED)



Material: Dow Corning Silastic 55U Silicone Rubber
Durometer: Shore A 50 (±5)
Dimensions: (In Inches) Tolerances 0.500 (±0.030), 0.062 (±0.015)
Color: Grey

EXTRUDED SEAL S-341 (MOLDED)

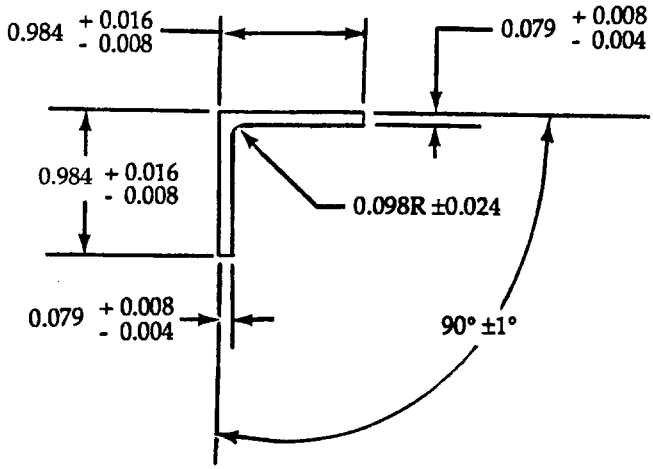
Extrusions and Formed Sections
Figure 1 (Sheet 2)



Extrusion Die No.: N/A
Material: Nylon 6/6 DuPont Zytel 42
Specification:
Durometer:
Color: Translucent

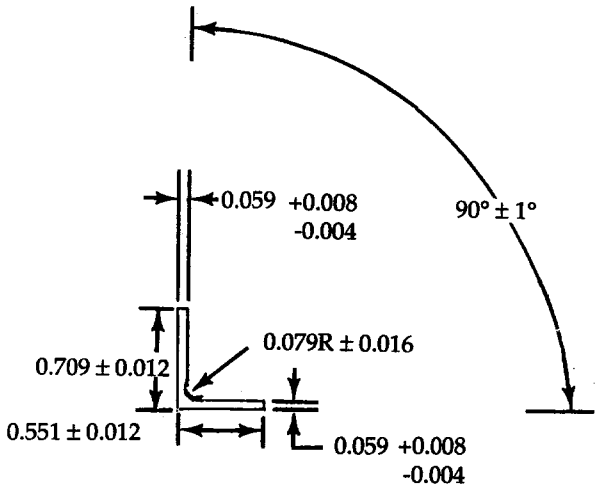
EXTRUDED TUBE S-355

Extrusions and Formed Sections
Figure 1 (Sheet 3)



Extrusion Die No.: Alcoa 152232
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

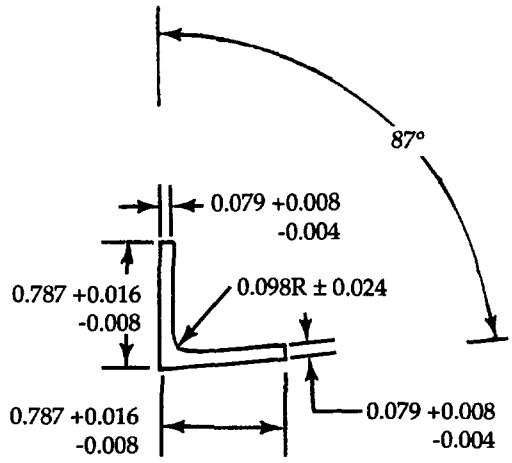
ANGLE S-502



Extrusion Die No.: Alcoa 151922
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

ANGLE S-512

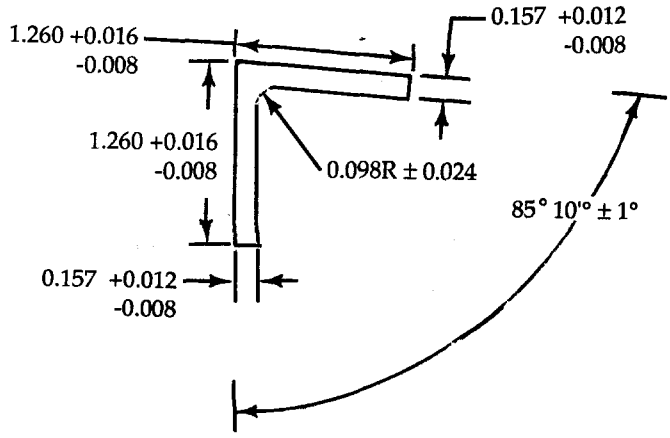
Extrusions and Formed Sections
Figure 1 (Sheet 4)



Extrusion Die No.: Alcoa 152022
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

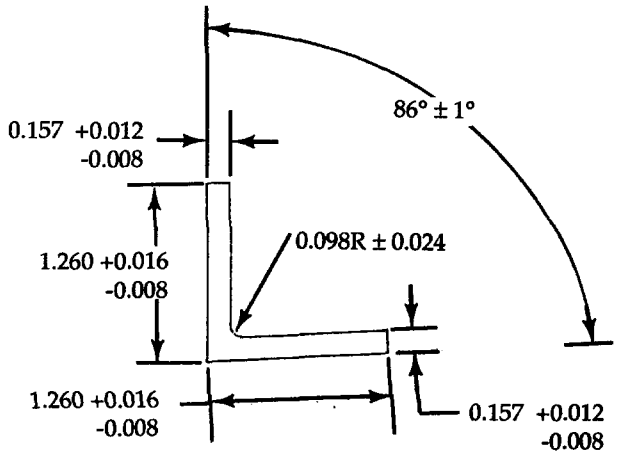
ANGLE S-515

Extrusions and Formed Sections
Figure 1 (Sheet 5)



Extrusion Die No.: Alcoa 152072; Pimalco 11225
Material: 2024-T6 or 2024-T6511
Specification: QQ-A-261 or QQ-A-200/2

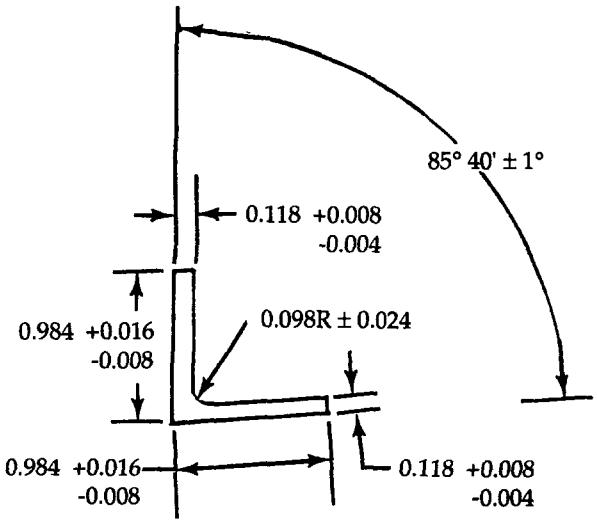
ANGLE S-516



Extrusion Die No.: Alcoa 152082
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

ANGLE S-517

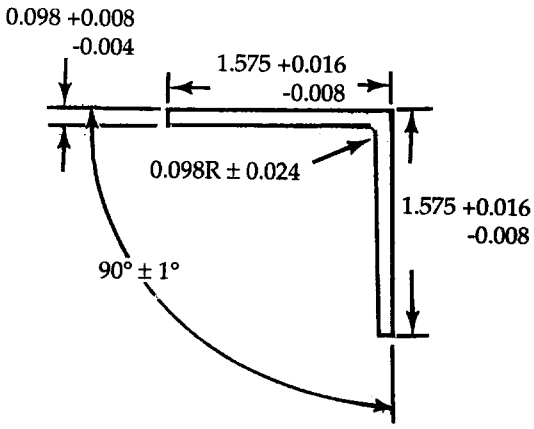
Extrusions and Formed Sections
Figure 1 (Sheet 6)



Extrusion Die No.: Alcoa 152102
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

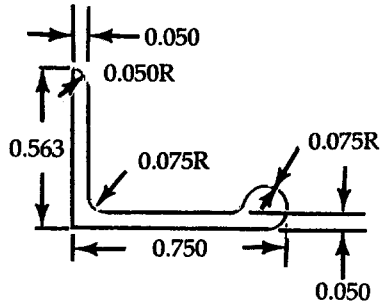
ANGLE S-519

Extrusions and Formed Sections
Figure 1 (Sheet 7)



Extrusion Die No.: Alcoa 152192
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

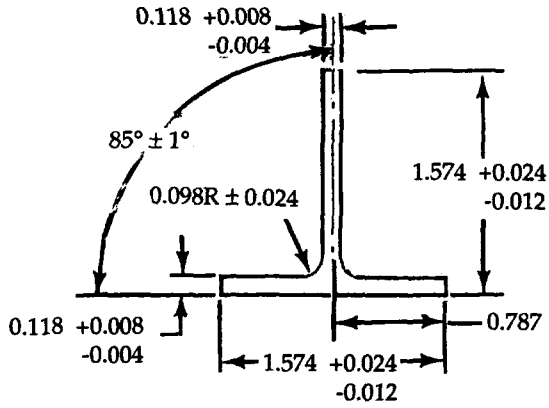
ANGLE S-520



Extrusion Die No.: AND 10135-0601
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

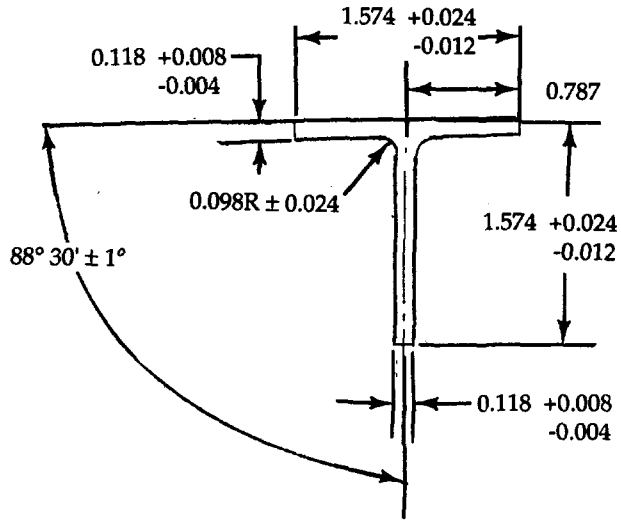
EXTRUDED ANGLE S-522

Extrusions and Formed Sections
Figure 1 (Sheet 8)



Extrusion Die No.: Alcoa 152142; Pimalco 11230
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

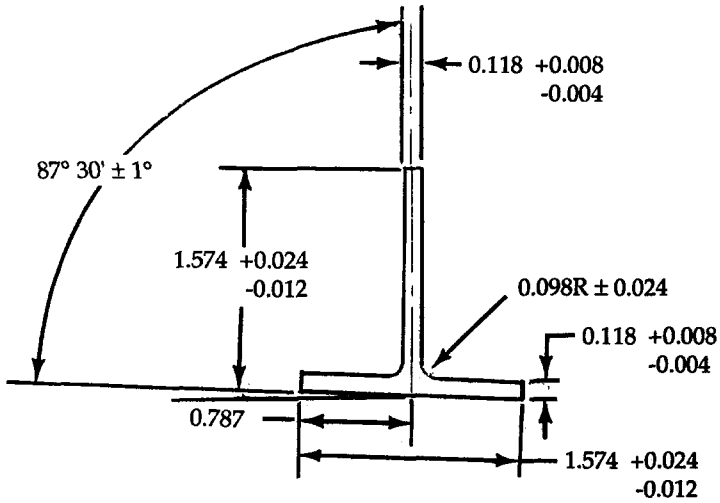
TEE S-524



Extrusion Die No.: Alcoa 152132
Material: 2024-T6 or 2024-T6511
Specification: QQ-A-261 or QQ-A-200/2

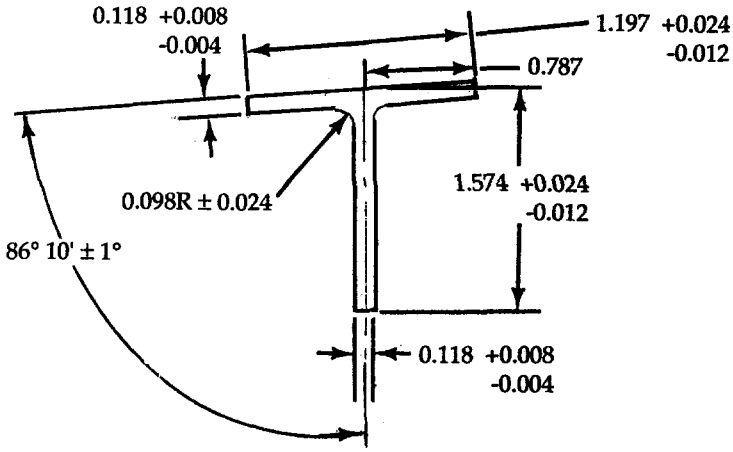
TEE S-525

Extrusions and Formed Sections
Figure 1 (Sheet 9)



Extrusion Die No.: Alcoa 152162; Pimalco 11229
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

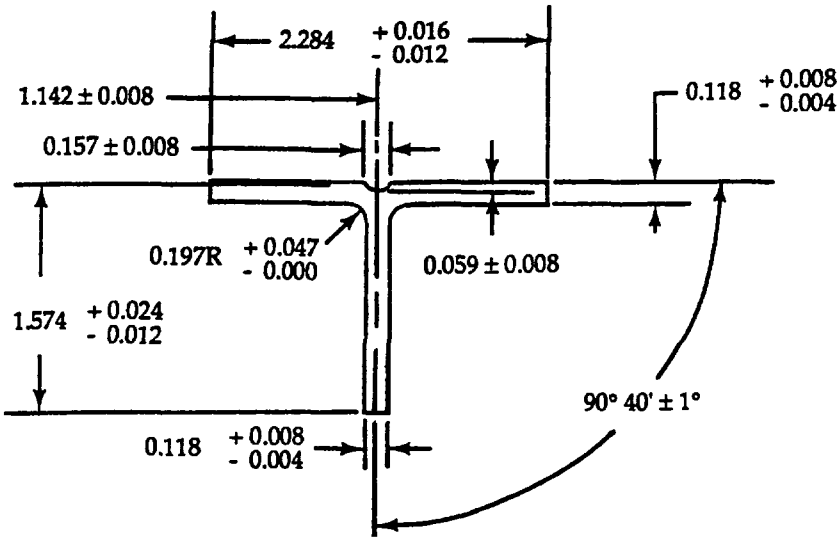
TEE S-526



Extrusion Die No.: Alcoa 152152; Pimalco 10966
Material: 2014-T6 or 2014-T6511
Specification: QQ-A-261 or QQ-A-200/2

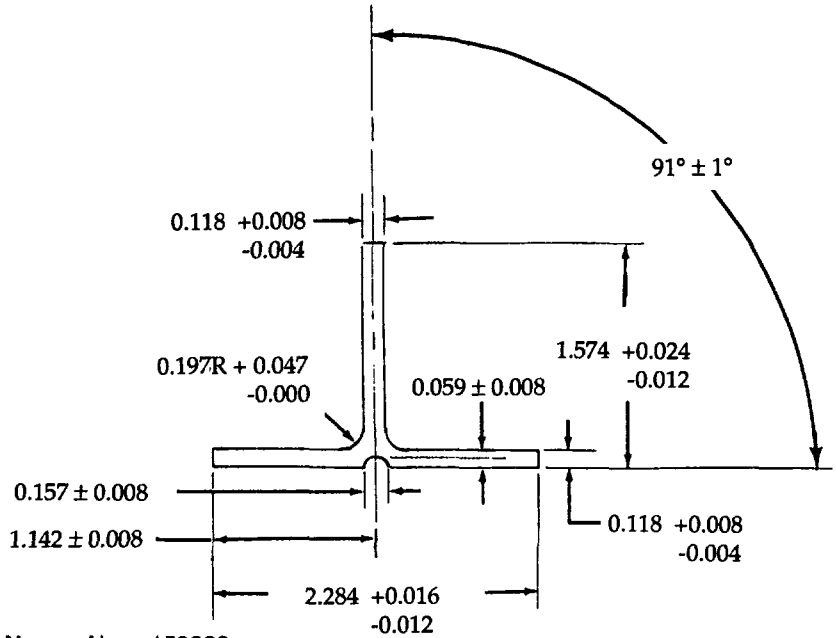
TEE S-527

Extrusions and Formed Sections
Figure 1 (Sheet 10)



Extrusion Die No.: Alcoa 152212
Material: 2014-T6 or 2014-T6511
Specification: QQ-A-261 or QQ-A-200/2

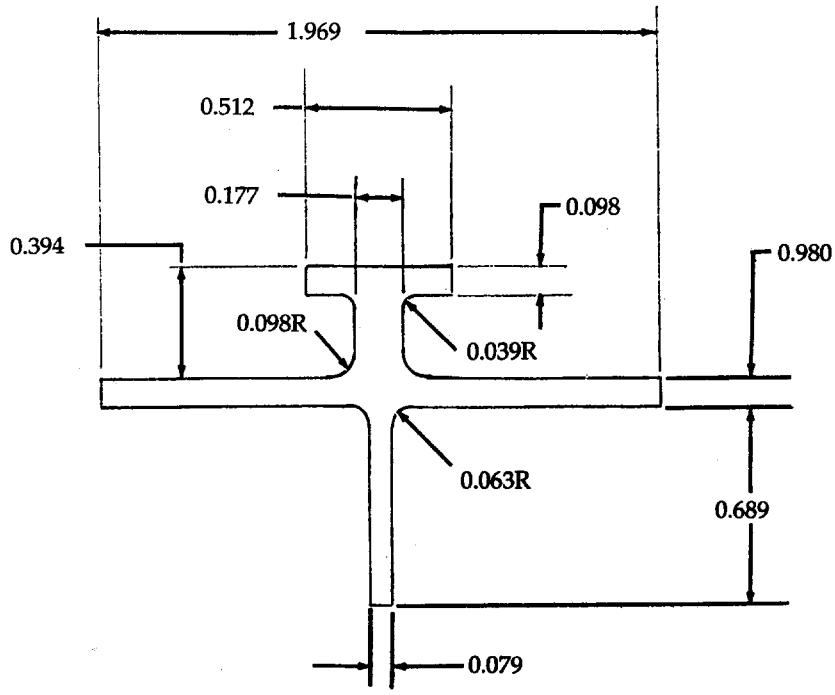
TEE S-534



Extrusion Die No.: Alcoa 152222
Material: 2014-T4 or 2014-T3511
Specification: QQ-A-267 or QQ-A-200/3

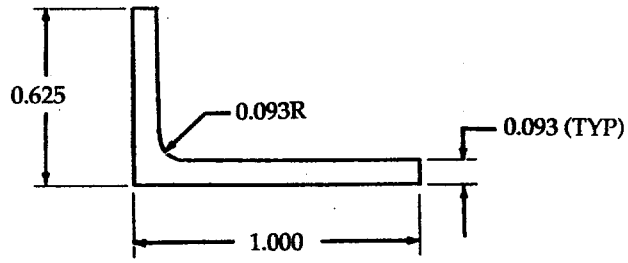
TEE S-535

Extrusions and Formed Sections
Figure 1 (Sheet 11)



Extrusion Die No.: Alcoa 165812
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

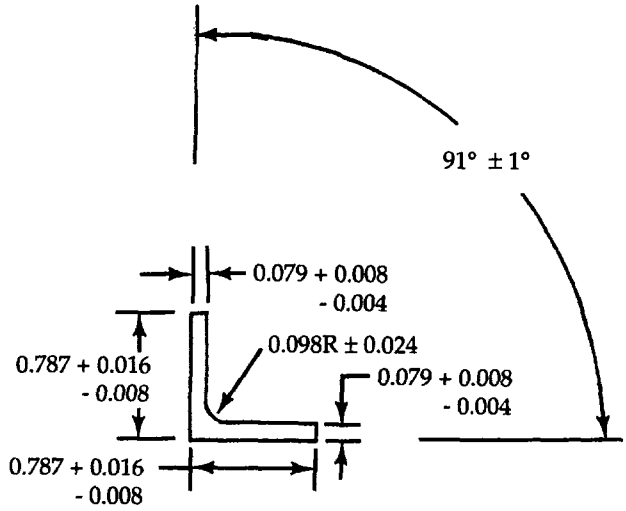
SEAT RAIL S-537



Extrusion Die No.: Pioneer Aluminum Co. PA5580
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED ANGLE S-545

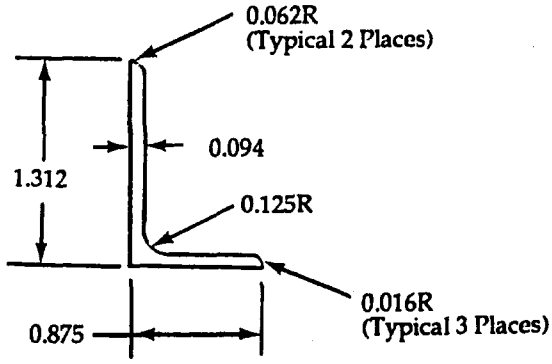
Extrusions and Formed Sections
Figure 1 (Sheet 12)



Extrusion Die No.: Alcoa 151982
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

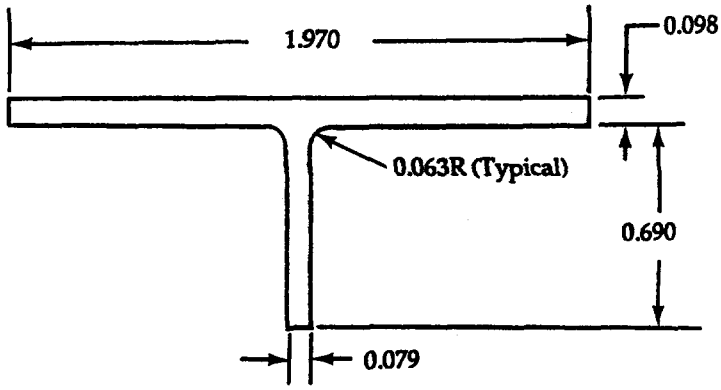
ANGLE S-548

Extrusions and Formed Sections
Figure 1 (Sheet 13)



Extrusion Die No.: Pioneer Aluminum, Inc. PA4126
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

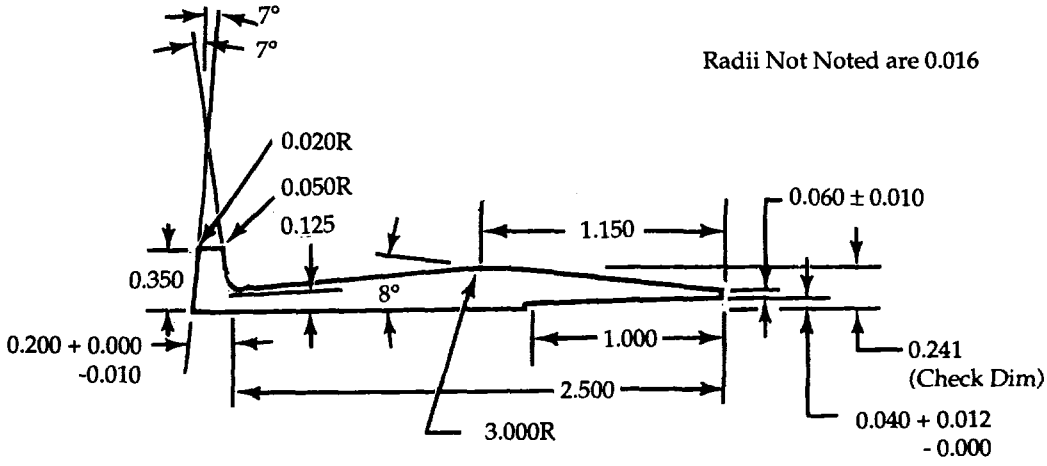
EXTRUDED ANGLE S-549



Extrusion Die No.: Pimalco 20168, Alcoa 265045, or
Pioneer Aluminum, Inc. PA19680
Material: 2024-T4 or 2024-T351
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED TEE S-551

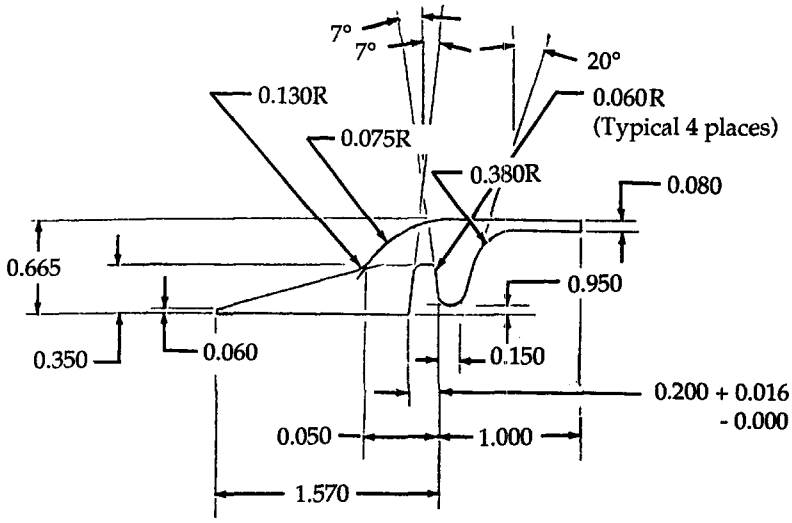
Extrusions and Formed Sections
Figure 1 (Sheet 14)



Extrusion Die No.: Texas Aluminum Co. T-8319, Alcoa 68115, Pimalco 20169, or Pioneer Aluminum Inc. PA31694
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

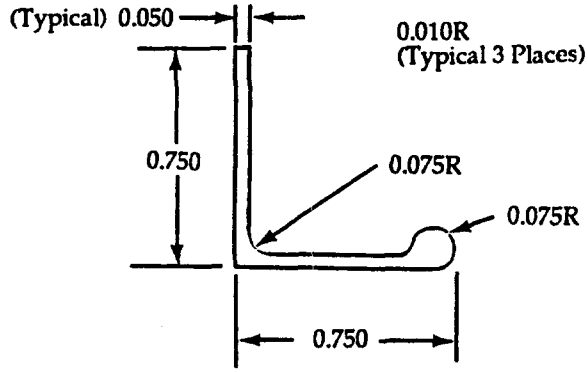
DOOR STRUCTURAL CARRY THRU (MALE) EXTRUDED S-552

Extrusions and Formed Sections
Figure 1 (Sheet 15)



Extrusion Die No.: Texas Aluminum Co. T-8320
Alcoa 68671, or Pioneer Aluminum Inc. PA31960
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

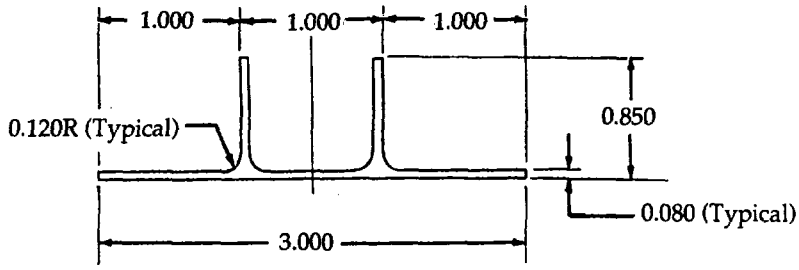
EXTRUDED DOOR STRUCTURAL CARRYTHRU S-553



Extrusion Die No.: Pioneer Aluminum, Inc. PA5324, Alcoa 33372
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

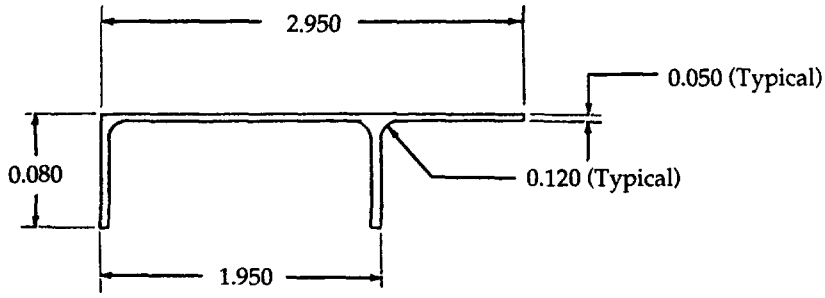
EXTRUDED BULB ANGLE S-554

Extrusions and Formed Sections
Figure 1 (Sheet 16)



Extrusion Die No.: Pimalco 11246, Texas Aluminum Co. T-8321
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

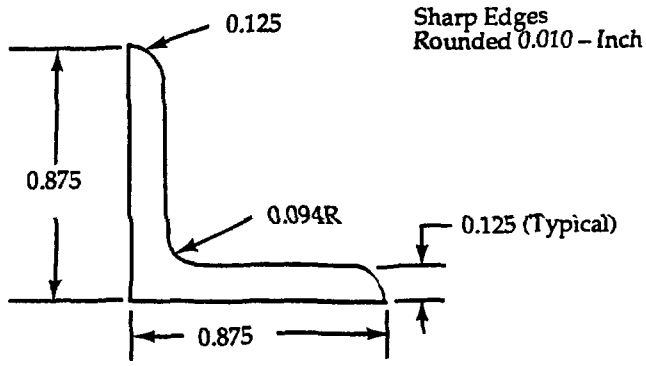
EXTENDED WEB CHANNEL S-555



Extrusion Die No.: Alcoa 315942 or Pioneer Aluminum, Inc. PA20333
Material: 2024-0
Specification: QQ-A-267 or QQ-A-200/3

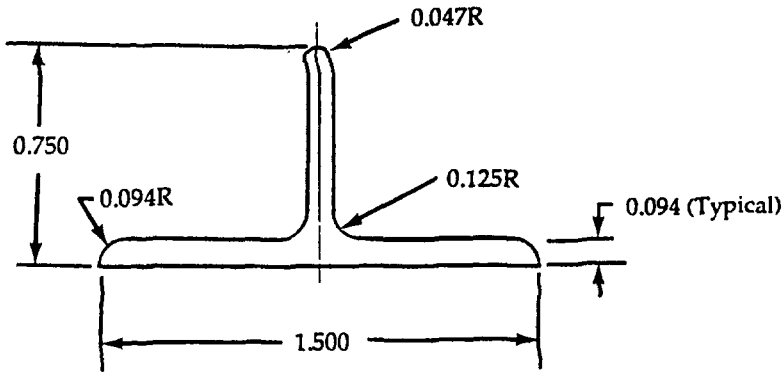
EXTENDED WEB CHANNEL S-556

Extrusions and Formed Sections
Figure 1 (Sheet 17)



Extrusion Die No.: AND 10133-0703
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

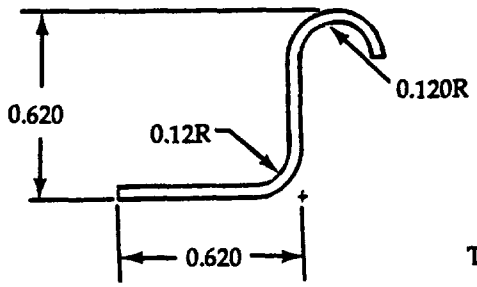
EXTRUDED ANGLE S-557



Extrusion Die No.: AND 10136-1402; Pimalco 10180
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED TEE S-558

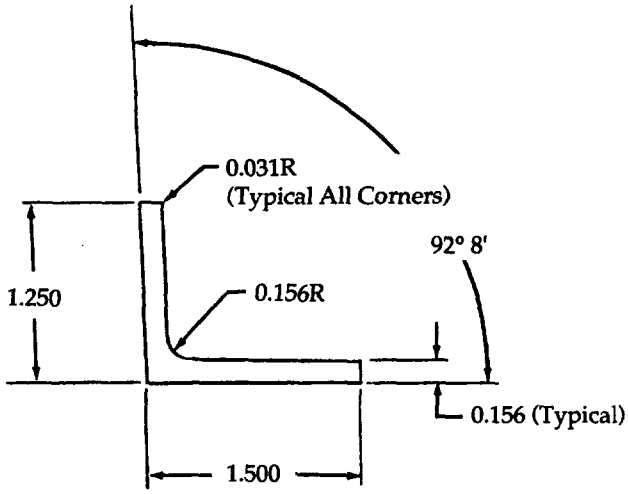
Extrusions and Formed Sections
Figure 1 (Sheet 18)



Tolerance 0.00 (± 0.030 – Inch)

Tool No.: Roll Forming Corp. RFC-500-1
Material: 0.032 2024-T4 Clad
Specification: QQ-A-362

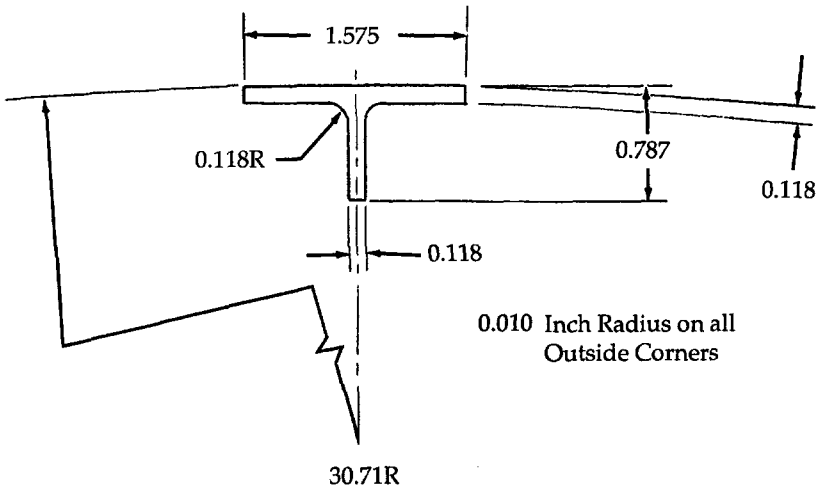
ROLLED J-SECTION S-559



Extrusion Die No.: Pioneer Aluminum Inc. PA 1873
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

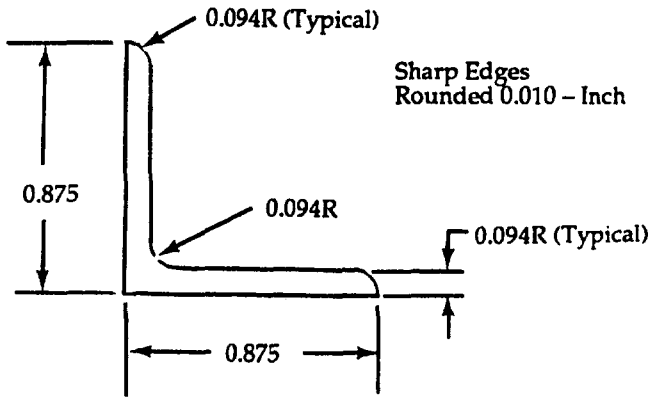
EXTRUDED ANGLE S-565

Extrusions and Formed Sections
Figure 1 (Sheet 19)



Extrusion Die No.: Pimalco 11227, Alcoa 153332
Texas Aluminum Co. 19471
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

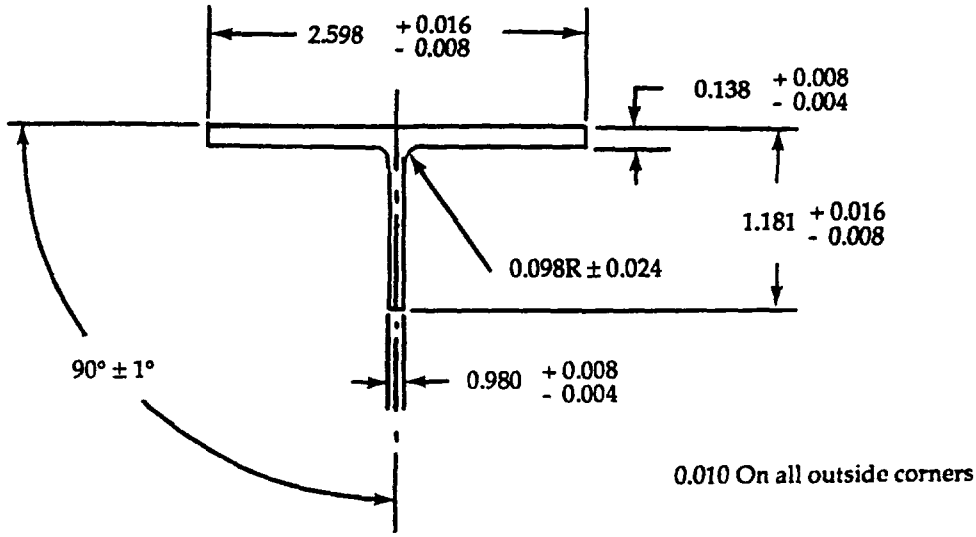
EXTRUDED TEE S-566



Extrusion Die No.: AND 10133-0702
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

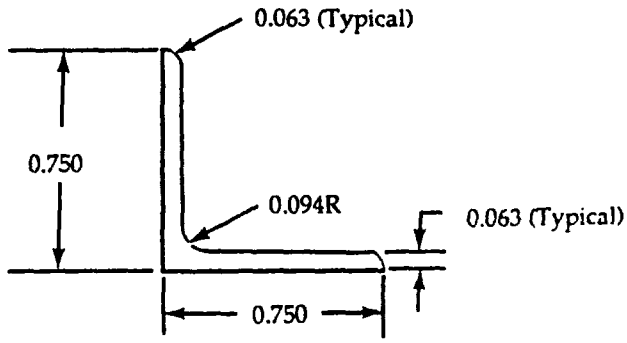
EXTRUDED ANGLE S-568

Extrusions and Formed Sections
Figure 1 (Sheet 20)



Extrusion Die No.: Alcoa 152202
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

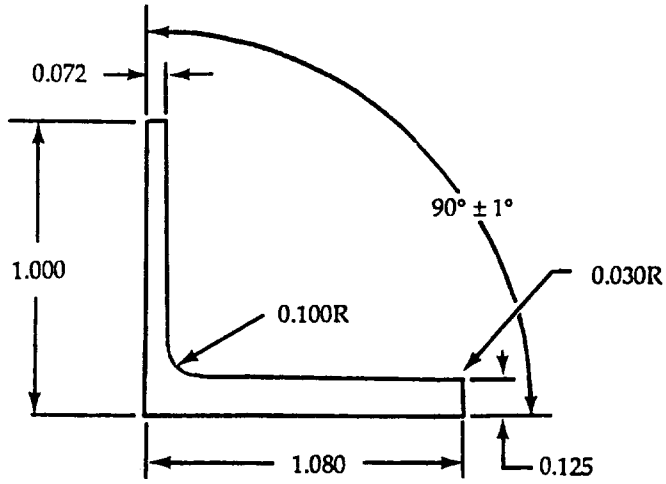
EXTRUDED TEE S-569



Extrusion Die No.: AND10133-0601
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

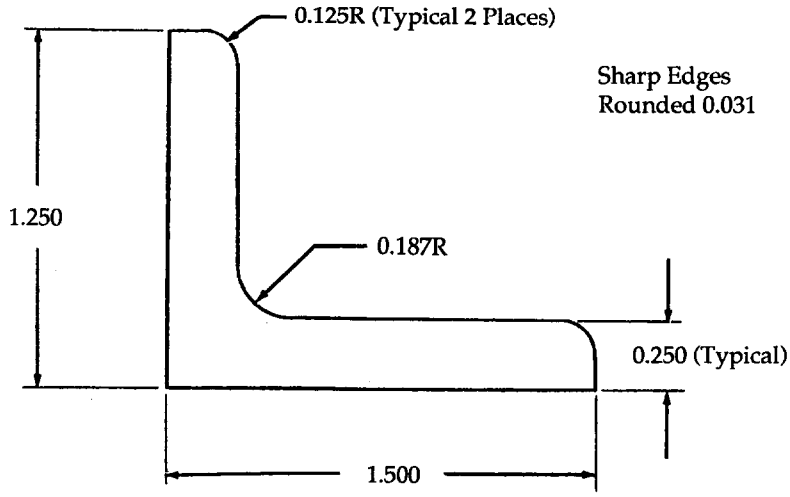
EXTRUDED TEE S-571

Extrusions and Formed Sections
Figure 1 (Sheet 21)



Extrusion Die No.: Pioneer Aluminum Inc. PA 1036
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

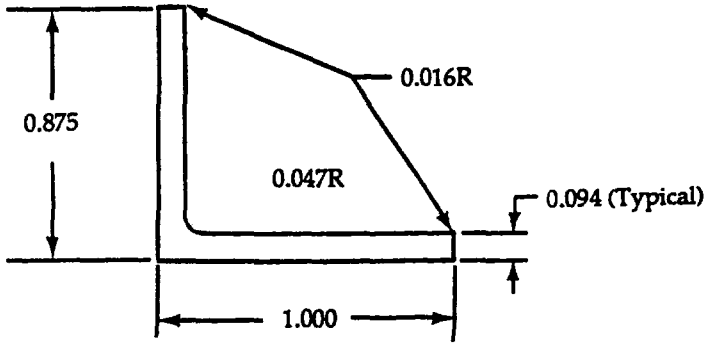
EXTRUDED ANGLE S-575



Extrusion Die No.: Pioneer Aluminum, Inc. PA4210, Pimalco 10967
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

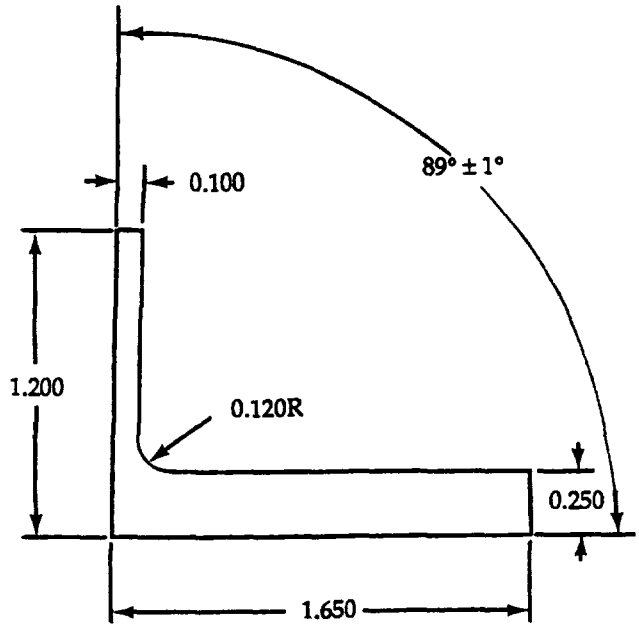
EXTRUDED ANGLE S-578

Extrusions and Formed Sections
Figure 1 (Sheet 22)



Extrusion Die No.: Pioneer Aluminum Co. PA5578
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

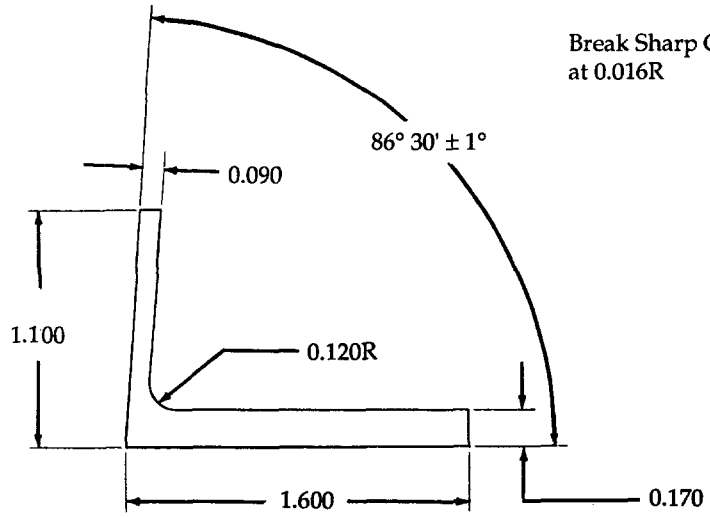
EXTRUDED ANGLE S-580



Extrusion Die No.: Texas Aluminum Co. T-8557, Alcoa 345282, Pimalco 10967, or Pioneer Aluminum Inc. PA 31516
Material: 2014-T6 or 2014-T651
Specification: QQ-A-261 or QQ-A-200/2

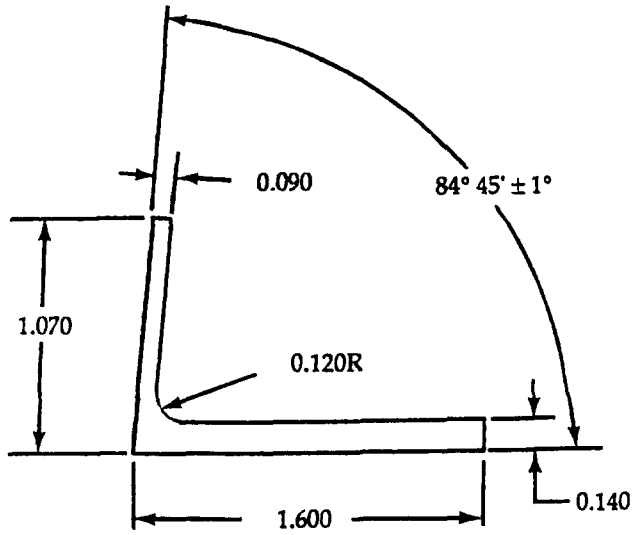
EXTRUDED ANGLE S-588

Extrusions and Formed Sections
Figure 1 (Sheet 23)



Extrusion Die No.: Texas Aluminum Co. T-8558, Pimalco 11206, or Pioneer Aluminum Inc. PA19925
Material: 2014-T6 or 2014-T6511
Specification: QQ-A-261 or QQ-A-200/2

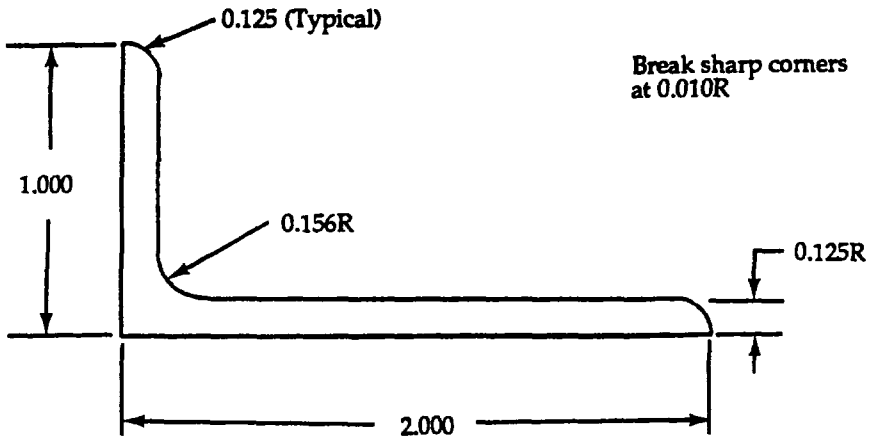
EXTRUDED ANGLE S-589



Extrusion Die No.: Texas Aluminum Co. T-8559, Alcoa 223495, Pimalco 20196, or Pioneer Aluminum Inc. PA19926
Material: 2014-T6 or 2014-T6511
Specification: QQ-A-261 or QQ-A-200/3

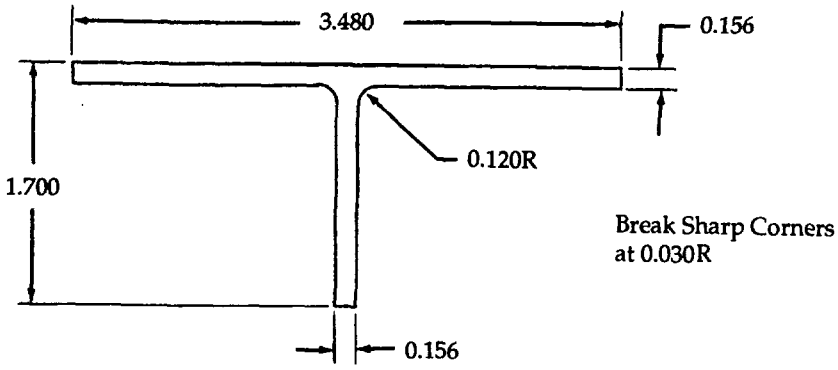
EXTRUDED ANGLE S-590

Extrusions and Formed Sections
Figure 1 (Sheet 24)



Extrusion Die No.: AND10134-2001
Material: 2014-T6 or 2014-T6511
Specification: QQ-A-261 or QQ-A-200/2

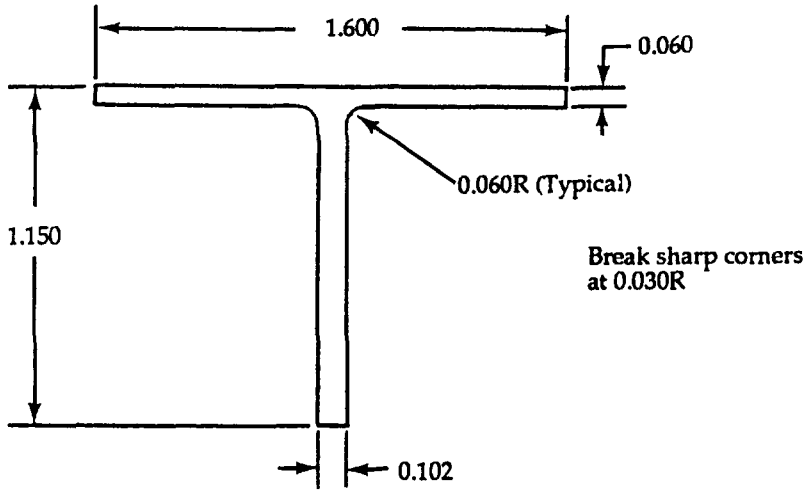
EXTRUDED ANGLE S-591



Extrusion Die No.: Pioneer Aluminum Inc. PA11250
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

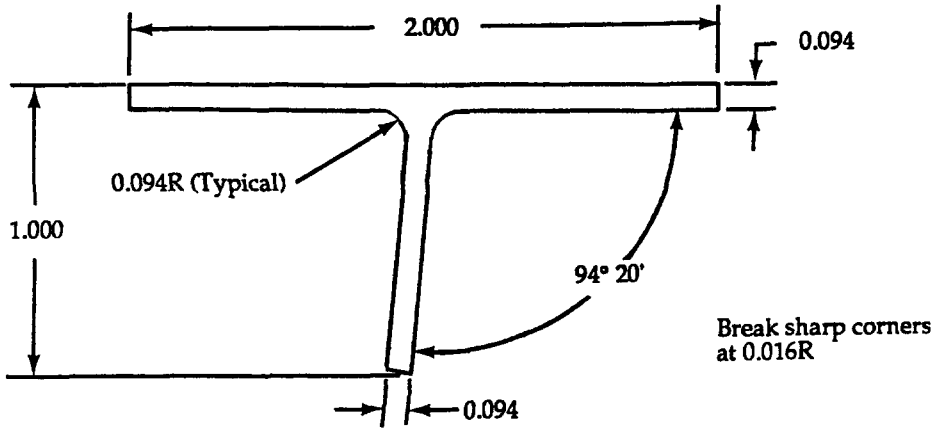
EXTRUDED TEE S-592

Extrusions and Formed Sections
Figure 1 (Sheet 25)



Extrusion Die No.: Pioneer Aluminum, Inc. PA6544
Material: 2024-T3511 Alternate Material 2014-T6511
Specification: QQ-A-267 Alternate Material Spec. QQ-A-261

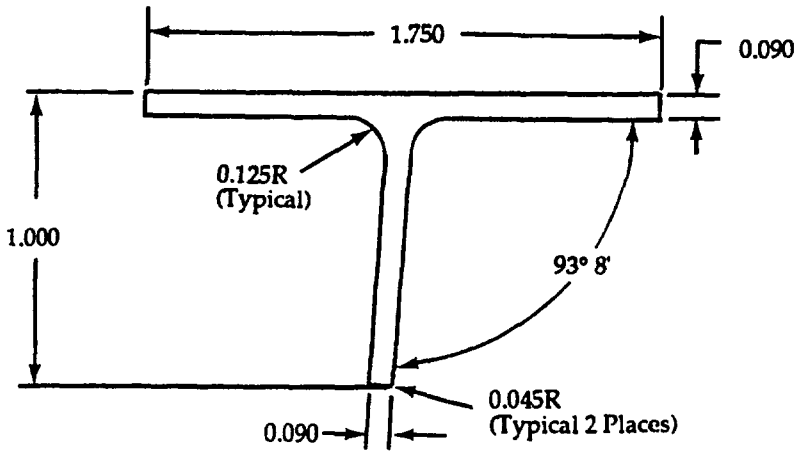
EXTRUDED TEE S-596



Extrusion Die No.: Pioneer Aluminum, Inc. PA10728
Material: 7075-T651
Specification: QQ-A-277

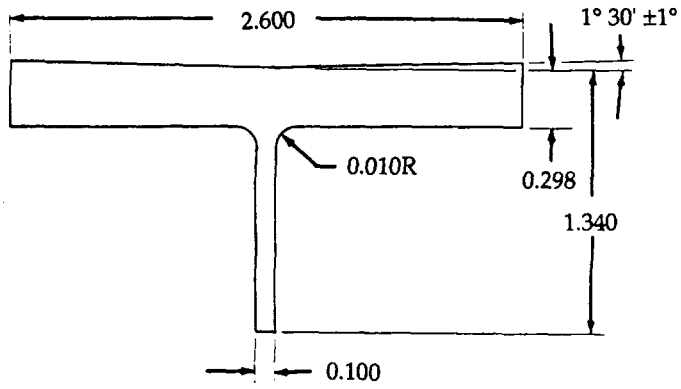
EXTRUDED TEE S-597

Extrusions and Formed Sections
Figure 1 (Sheet 26)



Extrusion Die No.: Pioneer Aluminum, Inc. PA10642
Material: 7075-T651 or 7075-T6511
Specification: QQ-A-277 or QQ-A-200/11

EXTRUDED TEE S-598

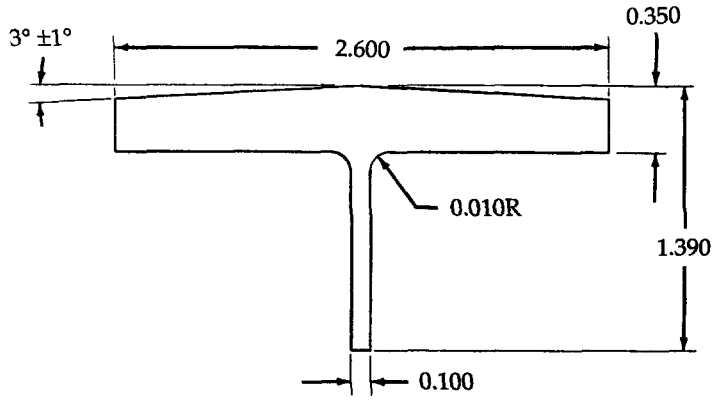


Break Sharp Corners
at 0.016R

Extrusion Die No.: Martin Marietta 50810, Pimalco 20202, Harvey Aluminum 50810 or Pioneer Aluminum Inc. PA20088
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED TEE S-599

Extrusions and Formed Sections
Figure 1 (Sheet 27)

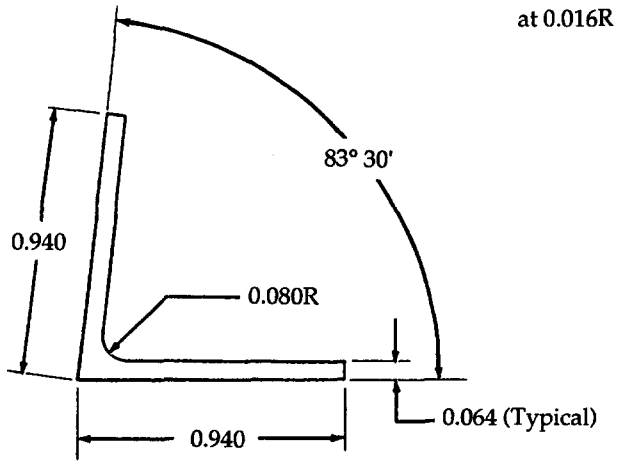


Break Sharp Corners
at 0.016R

Extrusion Die No.: Martin Marietta 50812, Harvey Aluminum 50812 Pimalco 20203, or Pioneer Aluminum Inc. PA19837
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED ANGLE S-600

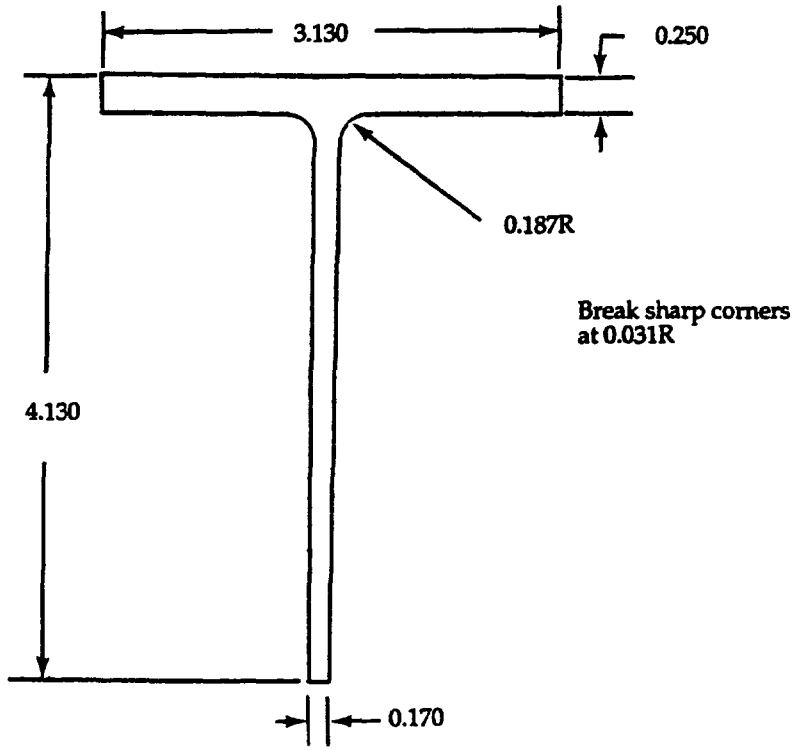
Break Sharp Corners
at 0.016R



Extrusion Die No.: Pioneer Aluminum, Inc. PA 1523
Material: 7075-T651 or 7075-T6511
Specification: QQ-A-277 or QQ-A-200/11

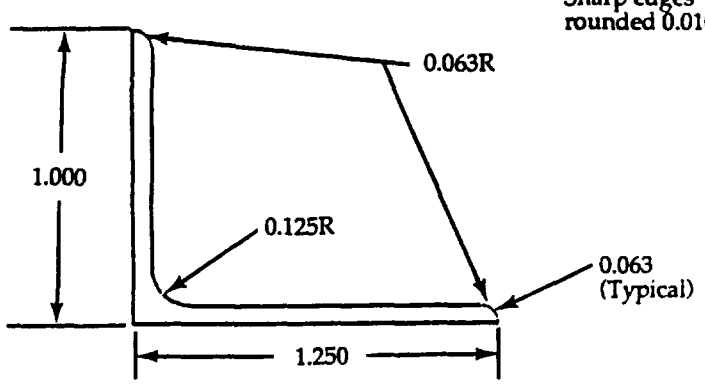
EXTRUDED ANGLE S-603

Extrusions and Formed Sections
Figure 1 (Sheet 28)



Extrusion Die No.: Pioneer Aluminum, Inc. PA6745; Pimalco 10836
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

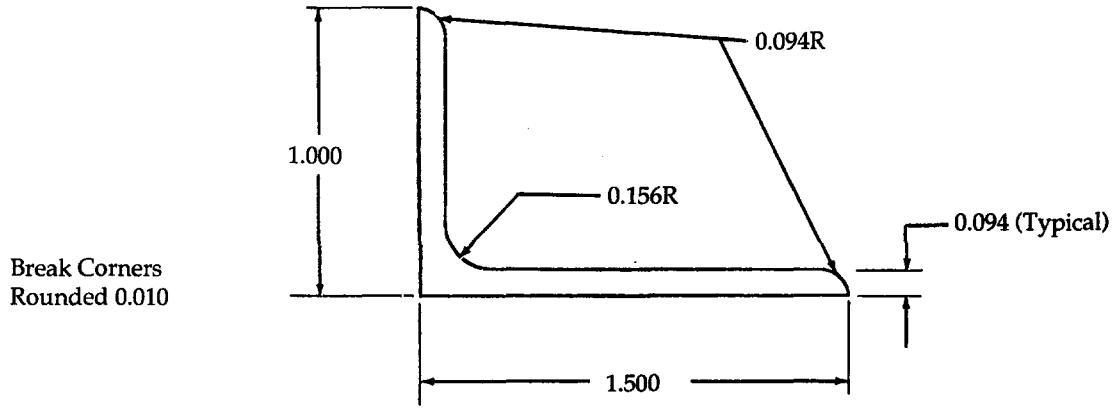
EXTRUDED TEE S-604



Extrusion Die No.: AND10134-1204
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267

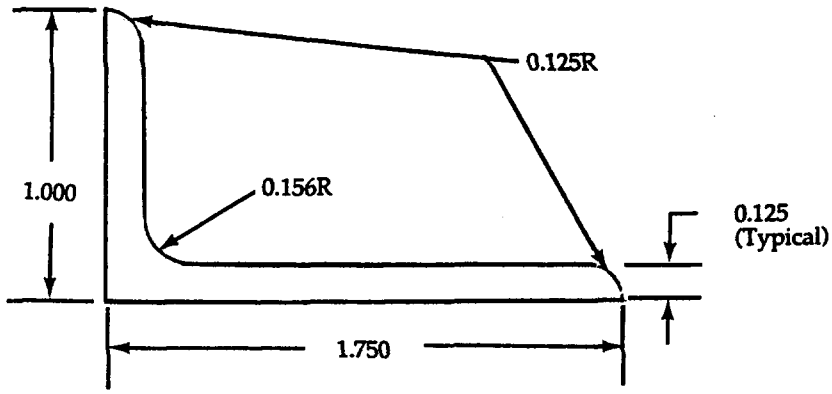
EXTRUDED ANGLE S-606

Extrusions and Formed Sections
Figure 1 (Sheet 29)



Extrusion Die No.: AND10134-1403
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267

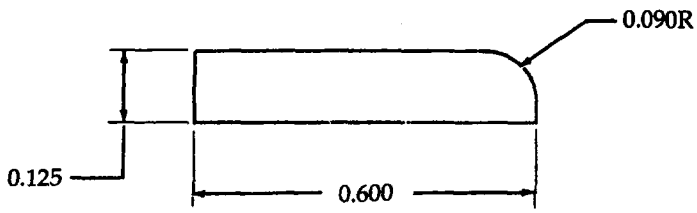
EXTRUDED ANGLE S-607



Extrusion Die No.: AND10134-1601
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267

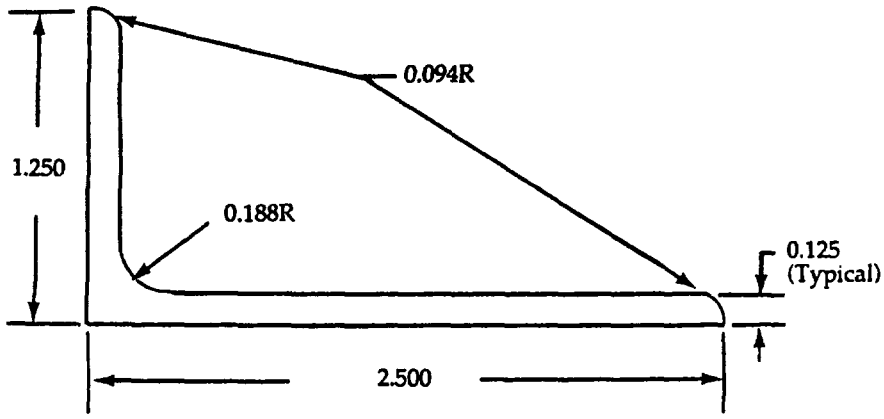
EXTRUDED ANGLE S-608

Extrusions and Formed Sections
Figure 1 (Sheet 30)



Extrusion Die No.: Pioneer Aluminum, Inc. PA 17956
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267

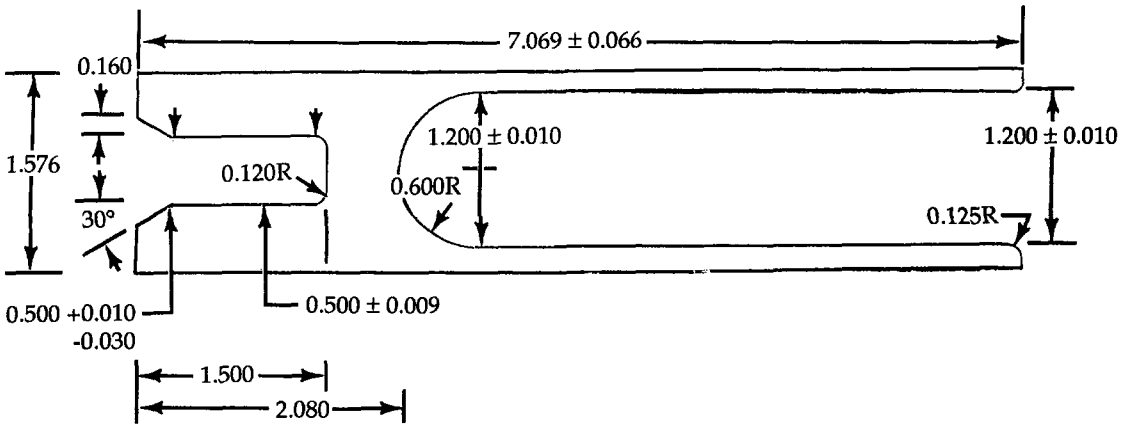
EXTRUDED BAR S-610



Extrusion Die No.: Pioneer Aluminum, Inc. PA 4430
Material: 2024-T3511
Specification: QQ-A-267

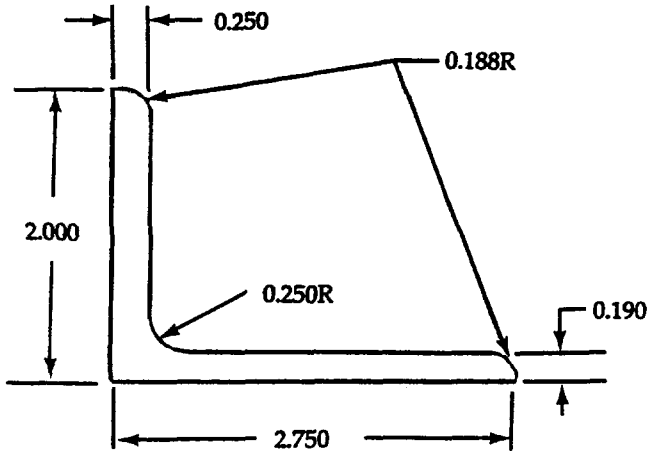
EXTRUDED ANGLE S-612

Extrusions and Formed Sections
Figure 1 (Sheet 31)



Extrusion Die No.: Alcoa 182732
Material: 2014-T6 **or -T6511**
Specification: QQ-A-261

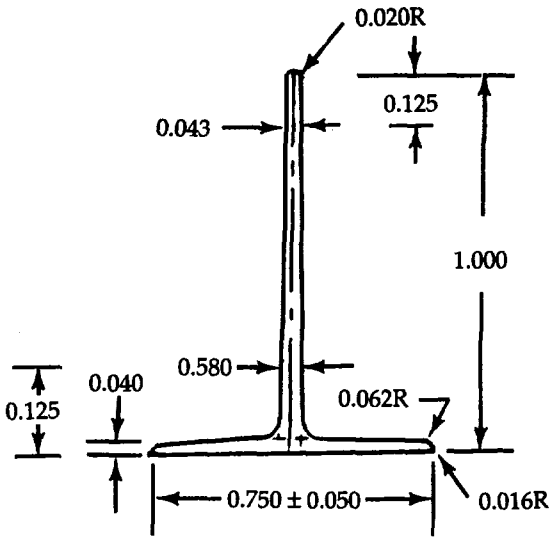
MODIFIED CHANNEL - EXTRUDED S-613



Extrusion Die No.: Pioneer Aluminum Inc. PA 1310
Material: 2024-T3511
Specification: QQ-A-267

EXTRUDED ANGLE S-614

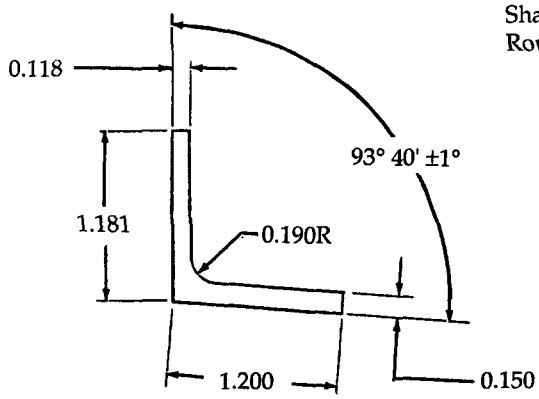
Extrusions and Formed Sections
Figure 1 (Sheet 32)



Extrusion Die No.: Martin Marietta 51199, Harvey Aluminum 51188, Pimalco 20213, or Pioneer Aluminum Inc. PA20085
Material: 6061-T6 or 6061-T6511
Specification: QQ-A-270 or QQ-A-200/8

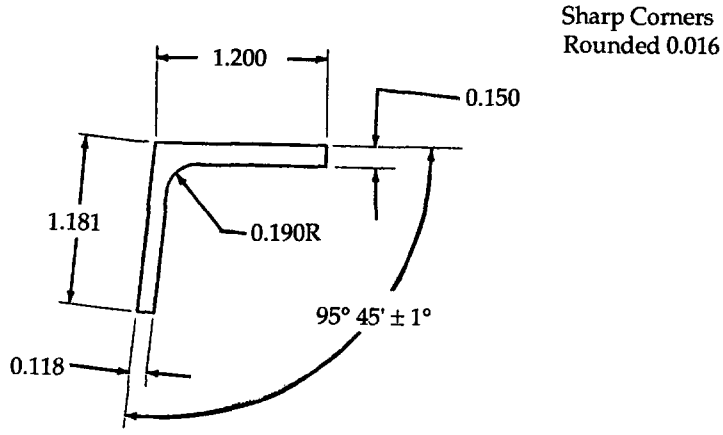
EXTRUDED TEE S-621

Extrusions and Formed Sections
Figure 1 (Sheet 33)



Extrusion Die No.: Pimalco 10970, Alcoa 303322, or Pioneer Aluminum Inc. PA19343
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

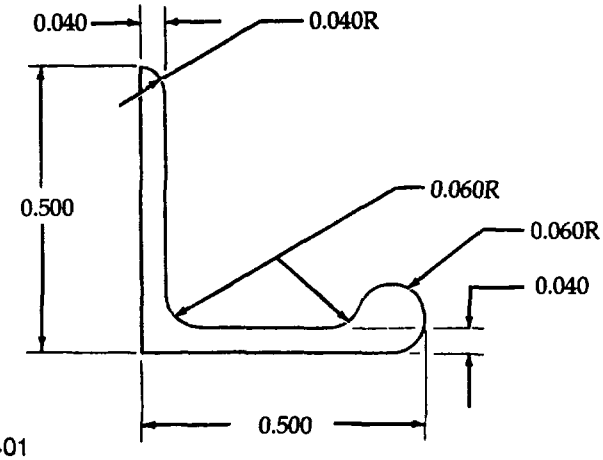
EXTRUDED ANGLE S-622



Extrusion Die No.: Pimalco 10969
Material: 2014-T6511
Specification: QQ-A-261

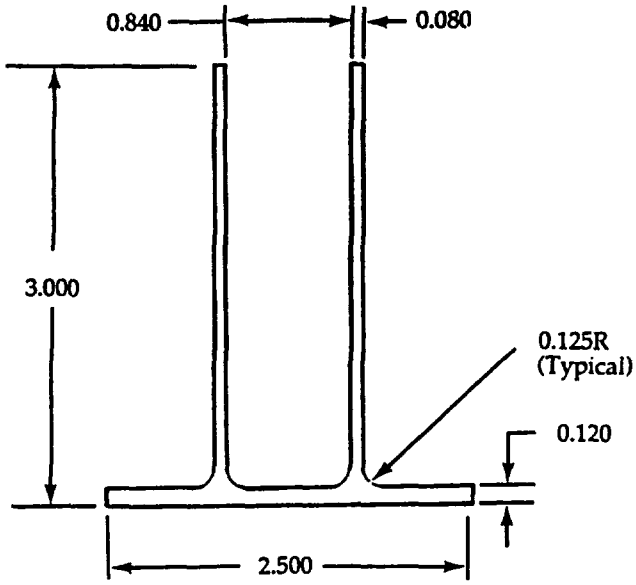
EXTRUDED ANGLE S-623

Extrusions and Formed Sections
Figure 1 (Sheet 34)



Extrusion Die No.: AND10135-0401
Material: 2024-T3511
Specification: QQ-A-267

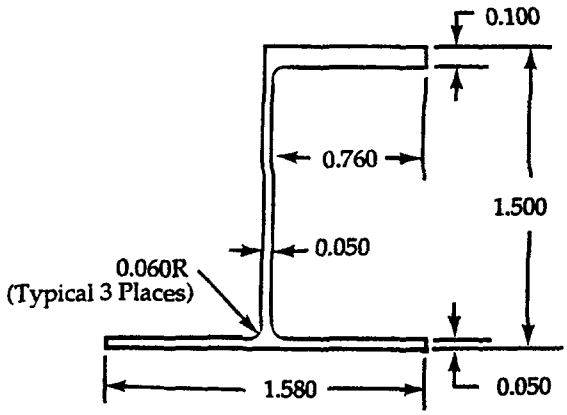
EXTRUDED BULB ANGLE S-626



Extrusion Die No.: Pioneer Aluminum, Inc. PA 11808
Material: 2024-T3511
Specification: QQ-A-267

EXTENDED WEB CHANNEL S-627

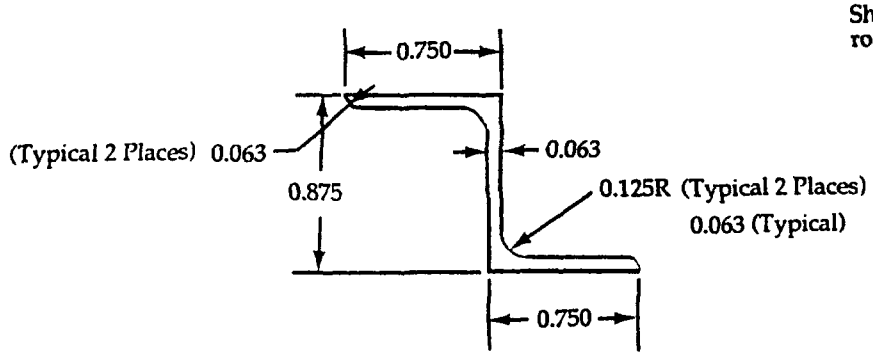
Extrusions and Formed Sections
Figure 1 (Sheet 35)



Break sharp corners
at 0.016R

Extrusion Die No.: Reynolds Metal Co. 02946, Pimalco 20217, or Alcoa 157005
Material: 2014-T6511
Specification: QQ-A-261 or QQ-A-200/2

EXTRUDED FLANGED TEE S-630

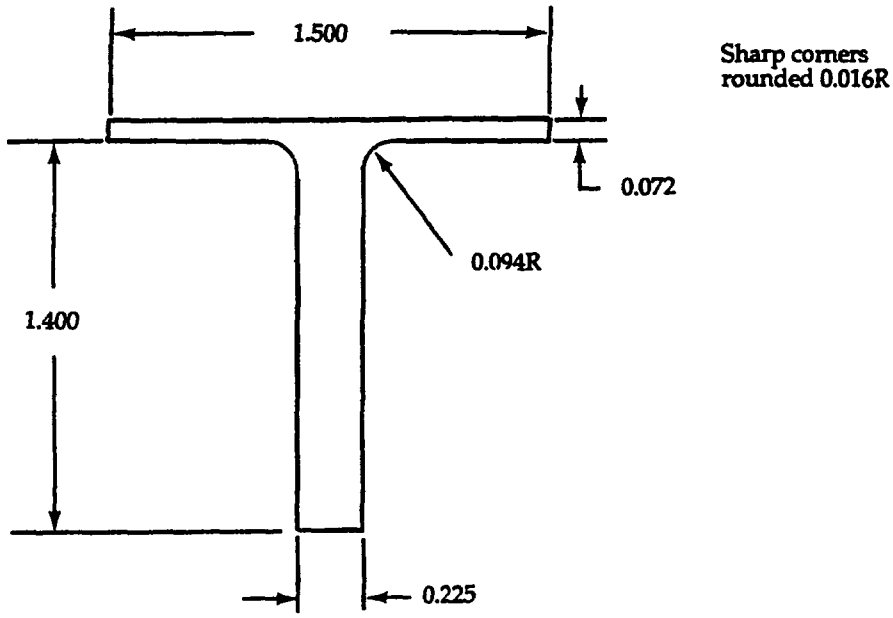


Sharp edges
rounded 0.010R

Extrusion Die No.: AND10138-0704; Pimalco 50169
Material: 2024-T3511
Specification: QQ-A-267

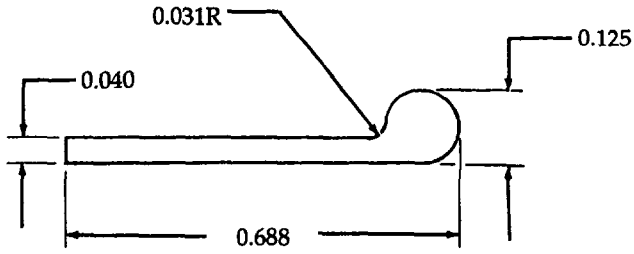
EXTRUDED ZEE S-633

Extrusions and Formed Sections
Figure 1 (Sheet 36)



Extrusion Die No.: Pioneer Aluminum Inc. PA 6910
Material: 7075-T6511
Specification: QQ-A-277

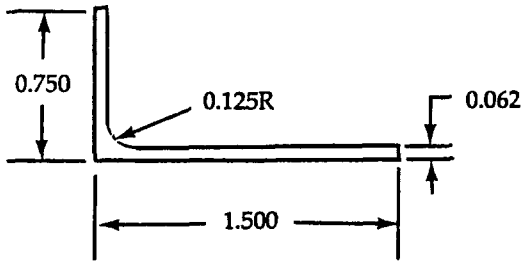
EXTRUDED TEE S-634



Extrusion Die No.: Pioneer Aluminum, Inc. PA 2822
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

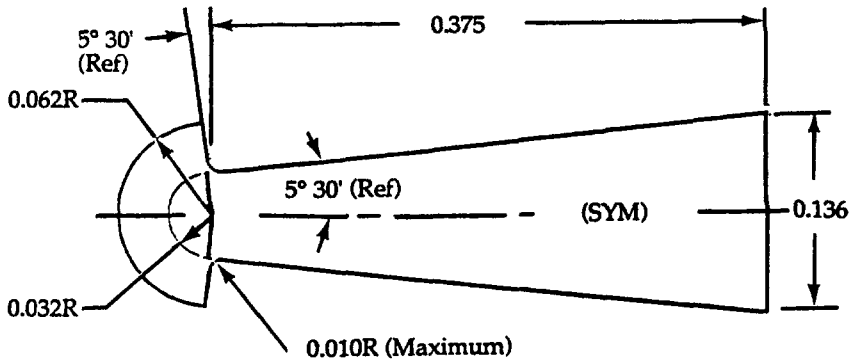
EXTRUDED BAR S-636

Extrusions and Formed Sections
Figure 1 (Sheet 37)



Extrusion Die No.: Pioneer Aluminum, Inc. PA5595
Material: 2024-T3511
Specification: QQ-A-267

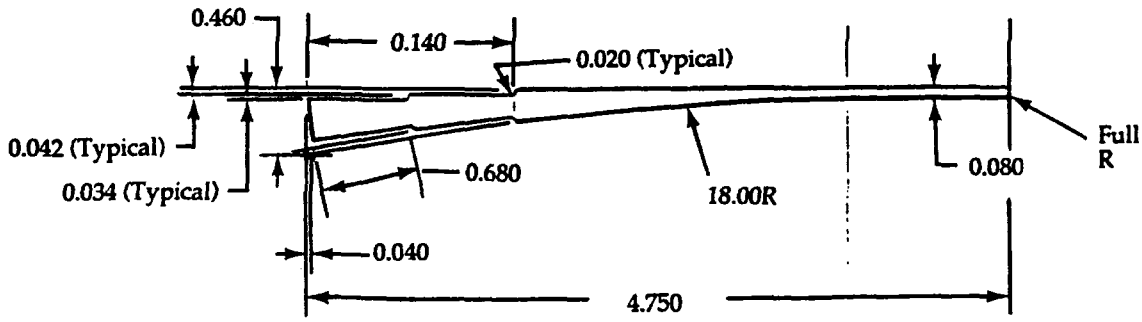
EXTRUDED ANGLE S-637



Extrusion Die No.:
Material: AZ61F-F
Specification: QQ-M-31

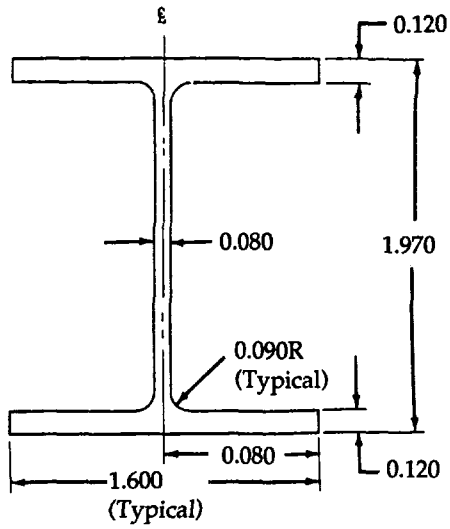
EXTRUDED BAR S-639

Extrusions and Formed Sections
Figure 1 (Sheet 38)



Extrusion Die No.: Alcoa 263215, Pimalco 20223, or Pioneer Aluminum Inc. PA20602
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

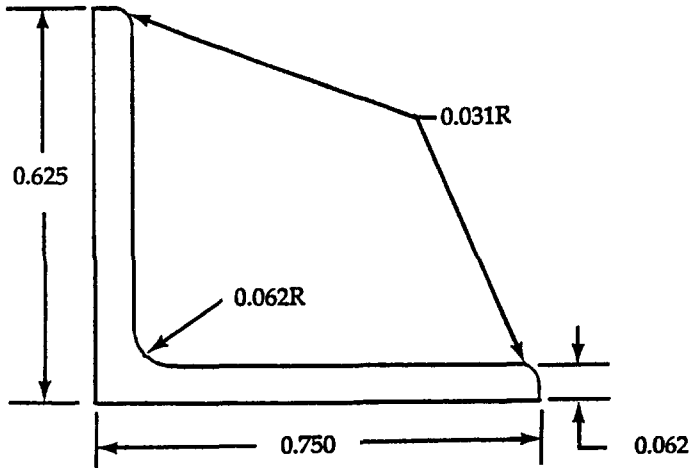
EXTRUDED BAR S-641



Extrusion Die No.: Alcoa 181235, Pimalco 20224, or Pioneer Aluminum Inc. PA20959
Material: 2014-T6511
Specification: QQ-A-261 or QQ-A-200/2

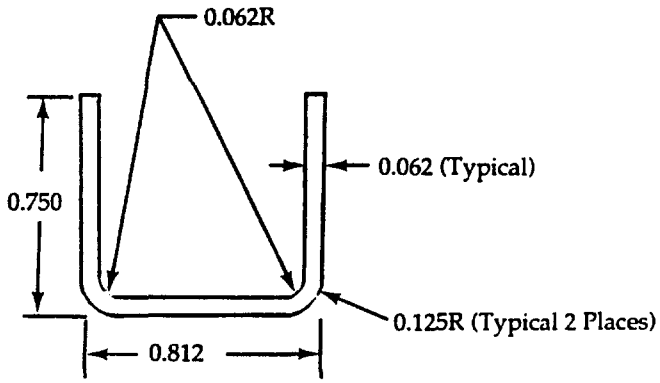
EXTRUDED I-BEAM S-642

Extrusions and Formed Sections
Figure 1 (Sheet 39)



Extrusion Die No.: Pioneer Aluminum, Inc. PA 4030
Material: 2024-T3511
Specification: QQ-A-267

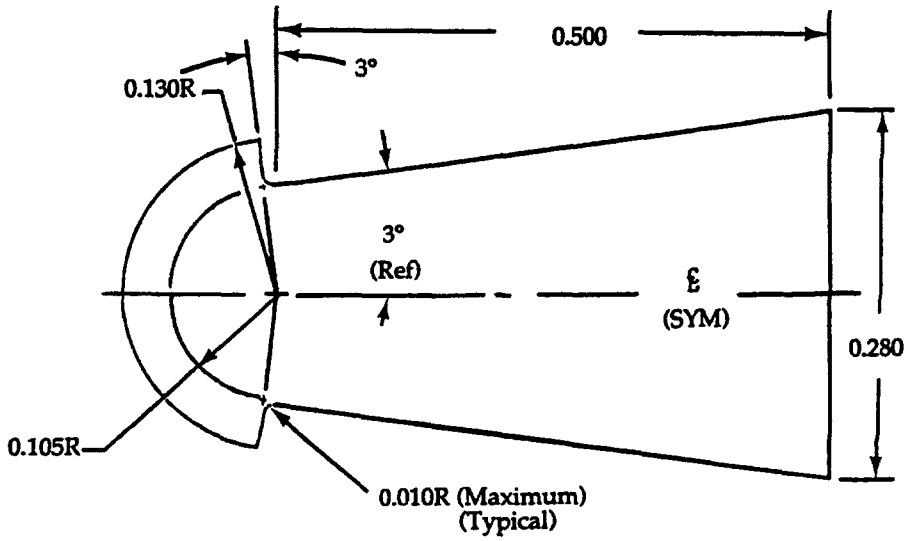
EXTRUDED ANGLE S-644



Extrusion Die No.: Pioneer Aluminum Inc. PA 7539
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267

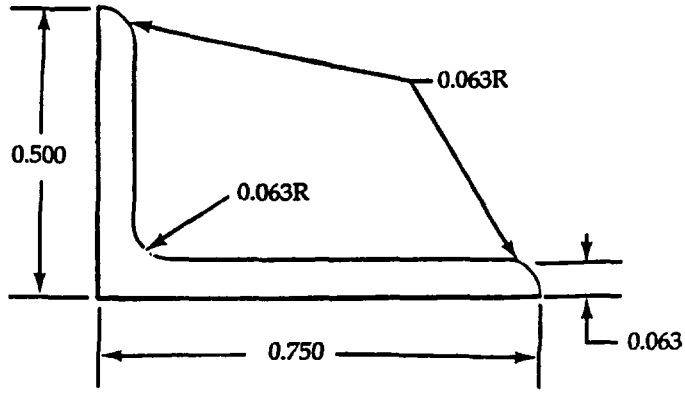
EXTRUDED CHANNEL S-646

Extrusions and Formed Sections
Figure 1 (Sheet 40)



Extrusion Die No.:
Material: AZ61A-F
Specification: QQ-M-31

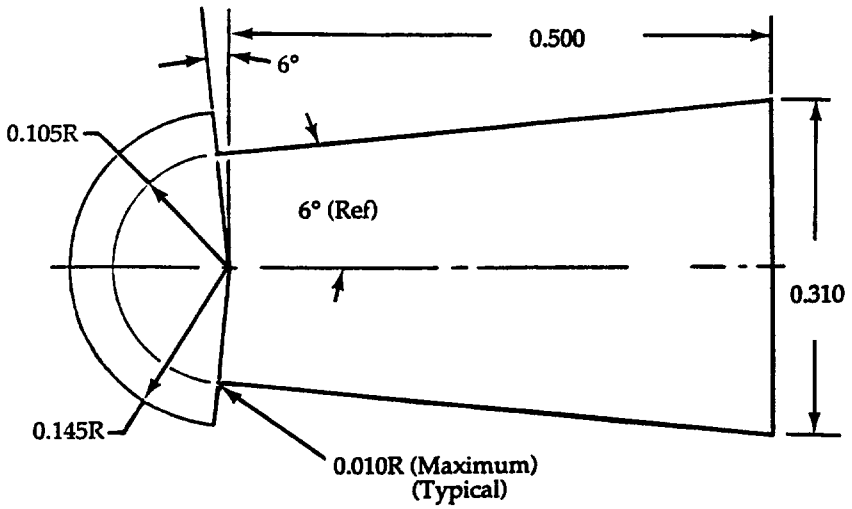
EXTRUDED BAR S-649



Extrusion Die No.: AND10134-0601
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED ANGLE S-654

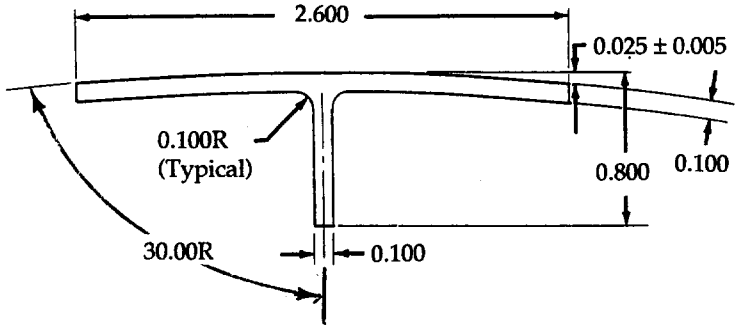
Extrusions and Formed Sections
Figure 1 (Sheet 41)



Extrusion Die No.:
Material: AZ61A-F
Specification: QQ-M-31

EXTRUDED BAR S-657

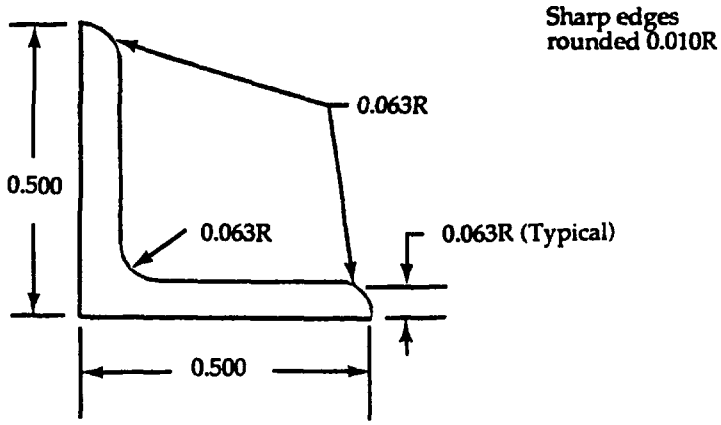
0.031R on All Outside Corners



Extrusion Die No.: Alcoa 217342-A, Pimalco 20235, or Pioneer Aluminum Inc. PA24766
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

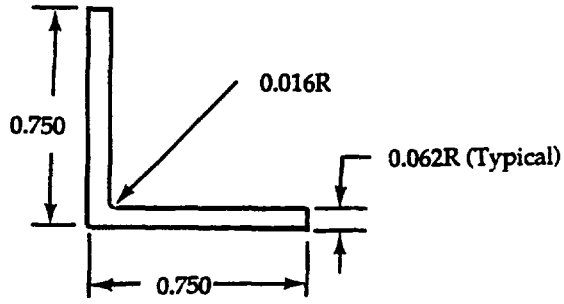
EXTRUDED TEE S-681

Extrusions and Formed Sections
Figure 1 (Sheet 42)



Extrusion Die No.: AND10133-0401
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

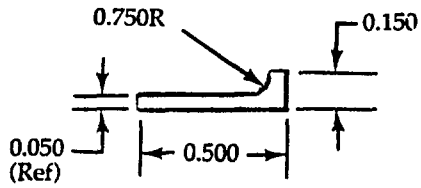
EXTRUDED ANGLE S-699



Extrusion Die No.: Pioneer Aluminum Inc. PA5540
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED ANGLE S-705

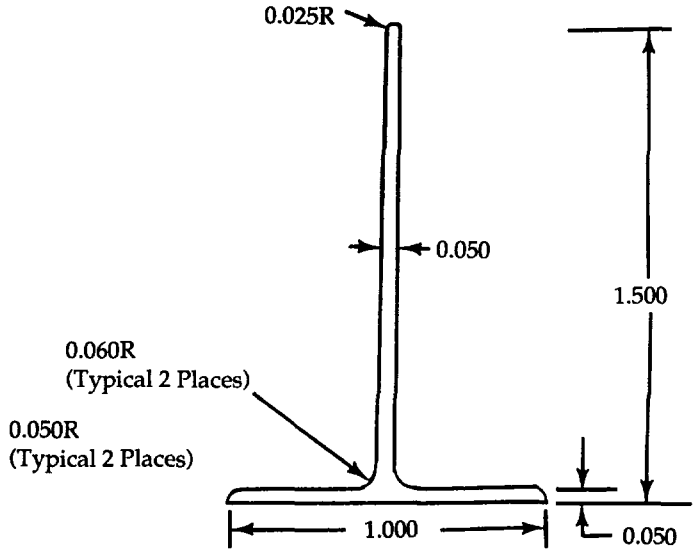
Extrusions and Formed Sections
Figure 1 (Sheet 43)



Extrusion Die No.: Pimalco 20240 or Pioneer Aluminum Inc. PA31794
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

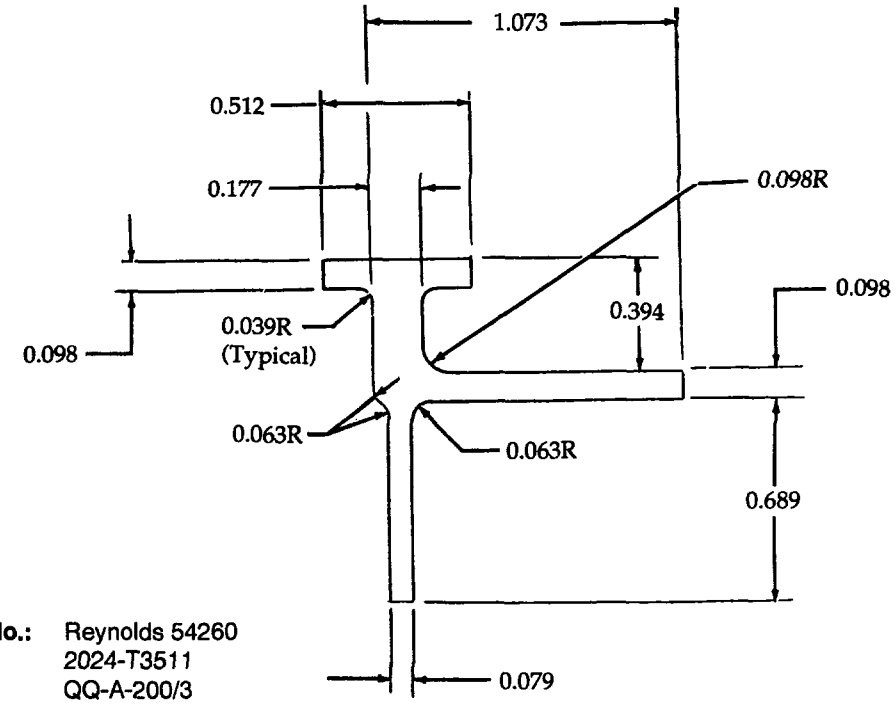
EXTRUDED BAR S-706

Extrusions and Formed Sections
Figure 1 (Sheet 44)



Extrusion Die No.: Pimalco 20241, Alcoa 236012 or Pioneer Aluminum Inc. PA29028
Material: 2014-T6511
Specification: QQ-A-200/2

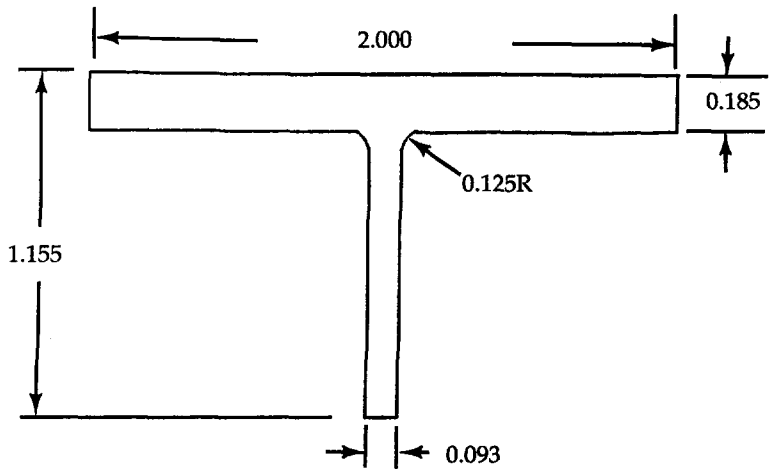
EXTRUDED TEE S-707



Extrusion Die No.: Reynolds 54260
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED SEAT RAIL S-713

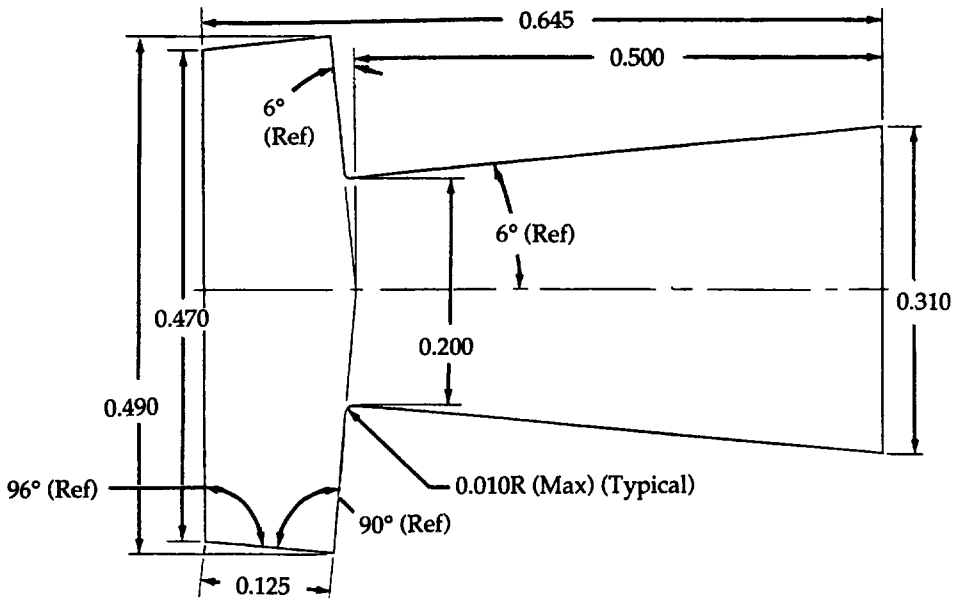
Extrusions and Formed Sections
Figure 1 (Sheet 45)



Extrusion Die No.: Alcoa 250372
Material: 6061-0
Specification: QQ-A-200/8

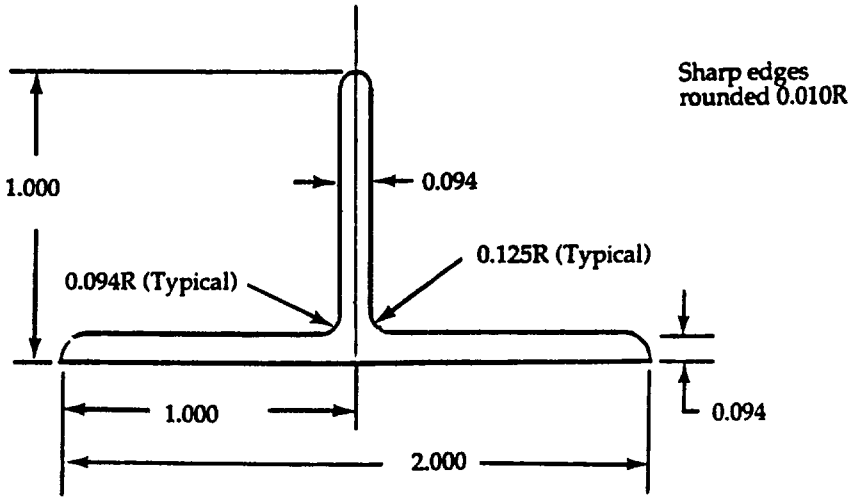
EXTRUDED BAR S-715

Extrusions and Formed Sections
Figure 1 (Sheet 46)



Extrusion Die No.: Standard Magnesium 288
Material: AZ61A-F
Specification: QQ-M-31

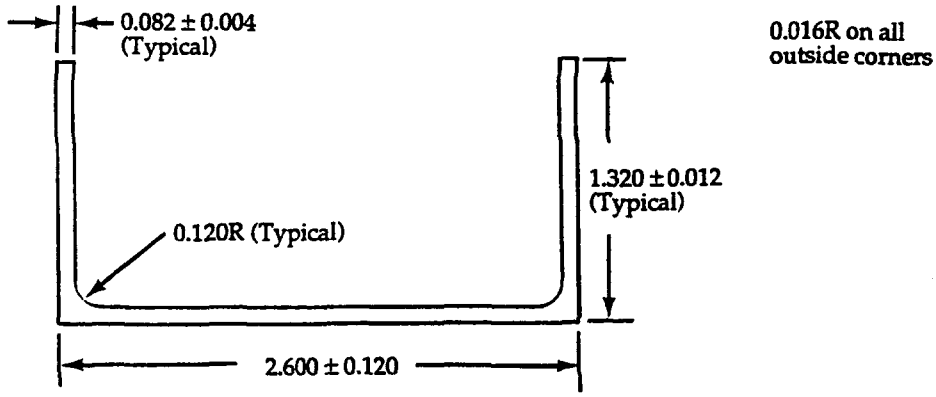
EXTRUDED BAR S-717



Extrusion Die No.: AND10136-2002
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED TEE S-727

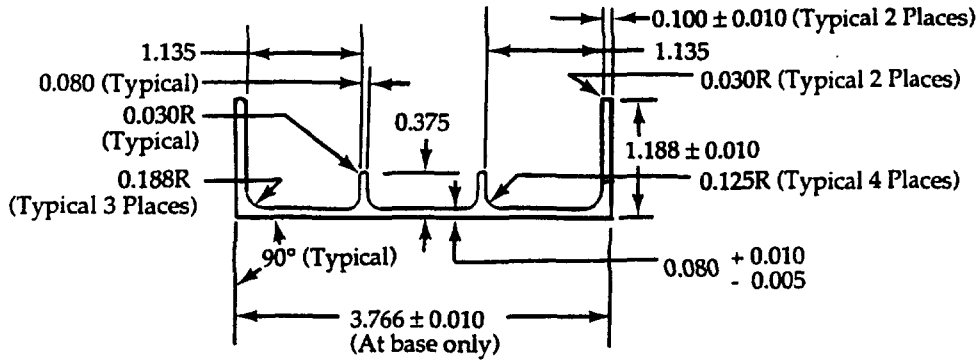
Extrusions and Formed Sections
Figure 1 (Sheet 47)



Extrusion Die No.: Pioneer Aluminum PA 27155
Material: 2014-T6511
Specification: QQ-A-200/2

EXTRUDED CHANNEL S-728

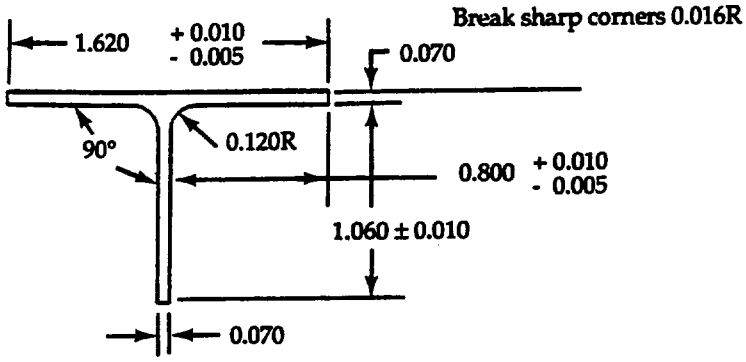
Break sharp corners 0.016R



Extrusion Die No.: Pimalco 11245, Texas Aluminum Company T-17884
Material: 2024-T3511
Specification: QQ-A-200/3

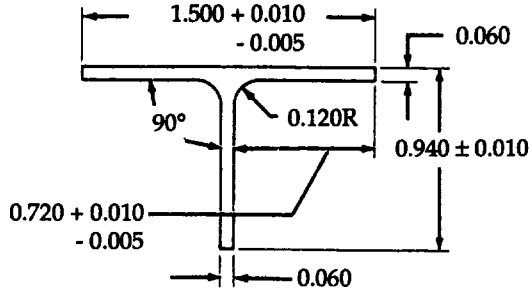
EXTRUDED CHANNEL S-729

Extrusions and Formed Sections
Figure 1 (Sheet 48)



Extrusion Die No.: Alcoa 276155, Pimalco 20259, Texas Aluminum Co. T-17885, or Pioneer Aluminum Inc. PA29135
Material: 2024-T3511
Specification: QQ-A-200/3

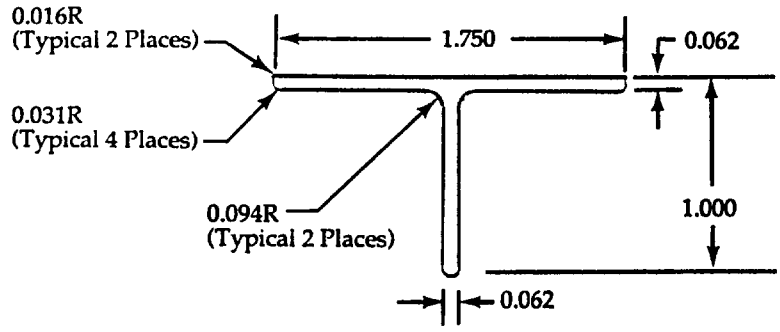
EXTRUDED TEE S-731



Extrusion Die No.: Texas Aluminum Co. T-17886 or Pimalco 11406
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED TEE S-732

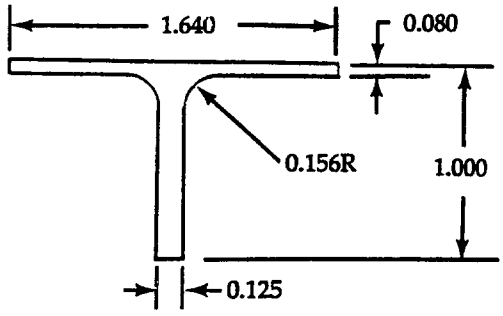
Extrusions and Formed Sections
Figure 1 (Sheet 49)



Extrusion Die No.: PA 6104 Pioneer Aluminum, Inc.
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED TEE S-733

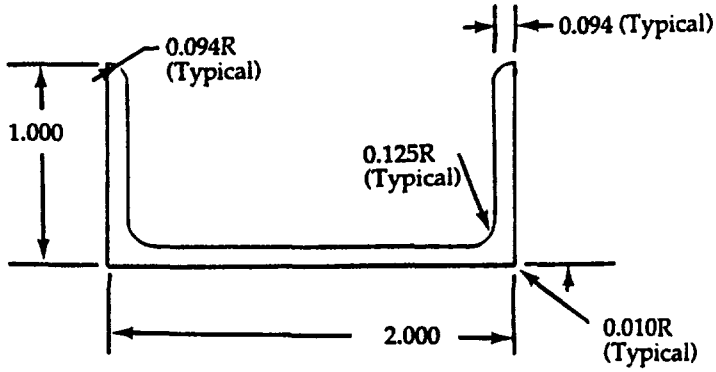
0.016R on all outside corners



Extrusion Die No.: Pimalco 11228 or Texas Aluminum Co. T-18430
Material: 2014-T6511
Specification: QQ-A-200/2

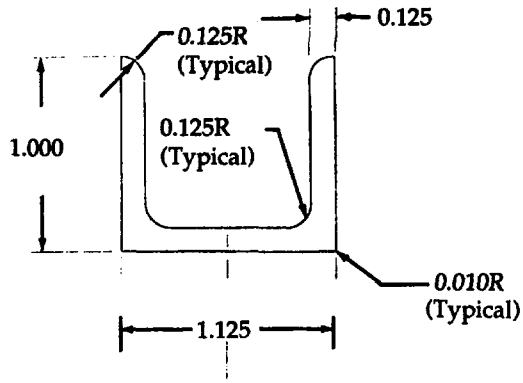
EXTRUDED TEE S-734

Extrusions and Formed Sections
Figure 1 (Sheet 50)



Extrusion Die No.: AND10137-2004
Material: 2024-T3511
Specification: QQ-A-200/3

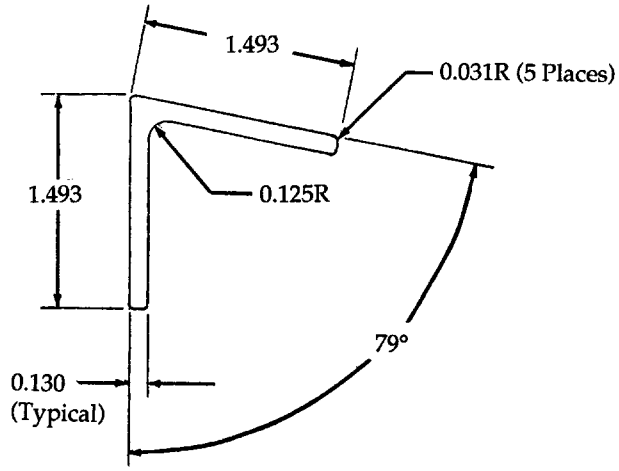
EXTRUDED CHANNEL S-735



Extrusion Die No.: AND10137-1113
Material: 2024-T3511
Specification: QQ-A-200/3

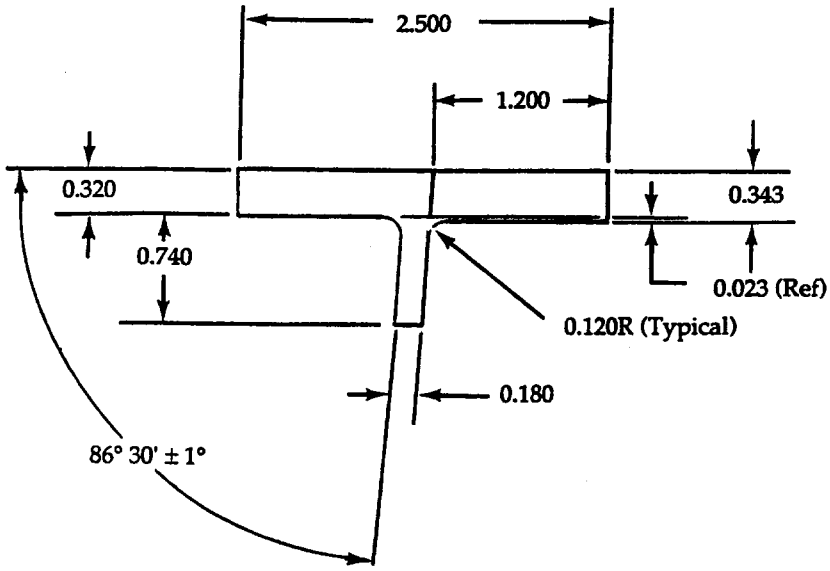
EXTRUDED CHANNEL S-736

Extrusions and Formed Sections
Figure 1 (Sheet 51)



Extrusion Die No.: Alcoa 71223
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED ANGLE S-738

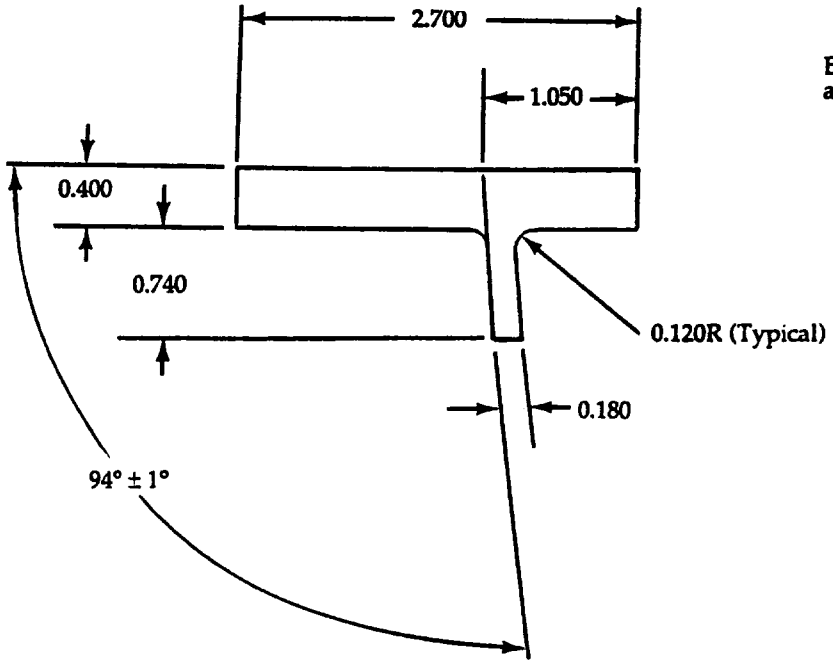


Break sharp corners at 0.016R

Extrusion Die No.: Alcoa 349252, Pimalco 20265, or Pioneer Aluminum Inc. PA31720
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-200/3

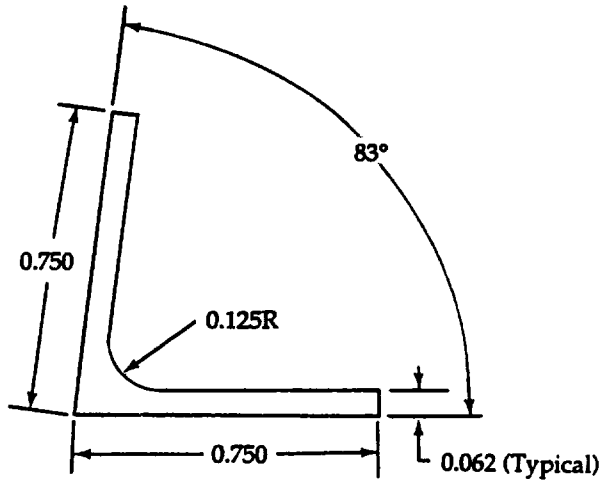
EXTRUDED TEE S-739

Extrusions and Formed Sections
Figure 1 (Sheet 52)



Extrusion Die No.: Alcoa 349242, Pimalco 20266, or Pioneer Aluminum Inc. PA31721
Material: 2024-T4 or 2024-T3511
Specification: QQ-A-200/3

EXTRUDED TEE S-740

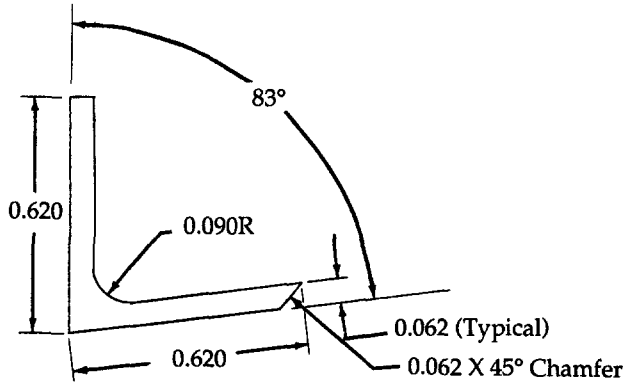


Extrusion Die No.: Pioneer Aluminum, Inc. PA1509
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED ANGLE S-744

Extrusions and Formed Sections
Figure 1 (Sheet 53)

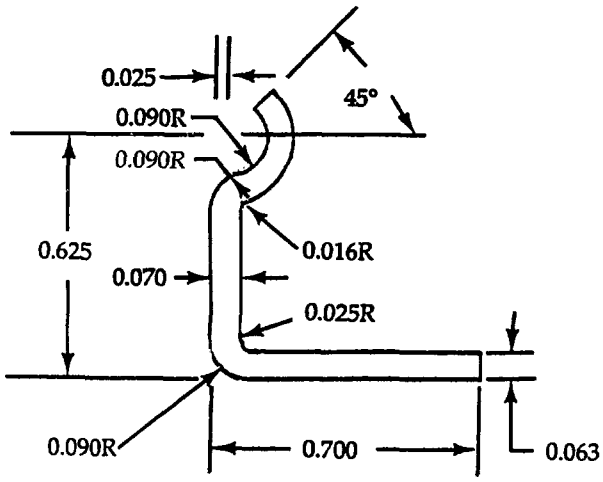
0.016R On All
External Corners



Extrusion Die No.: Alcoa 377162 or Pioneer Aluminum Inc. PA31251
Material: 2024-T3511
Specification: QQ-A-200/3

EXTRUDED ANGLE S-745

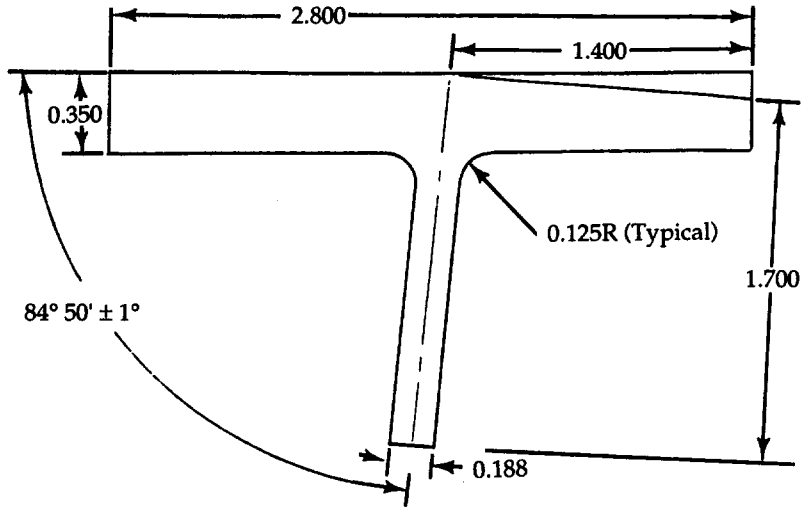
0.016R on all outside corners



Extrusion Die No.: Alcoa 353302
Material: 2024-T3511
Specification: QQ-A-200/3

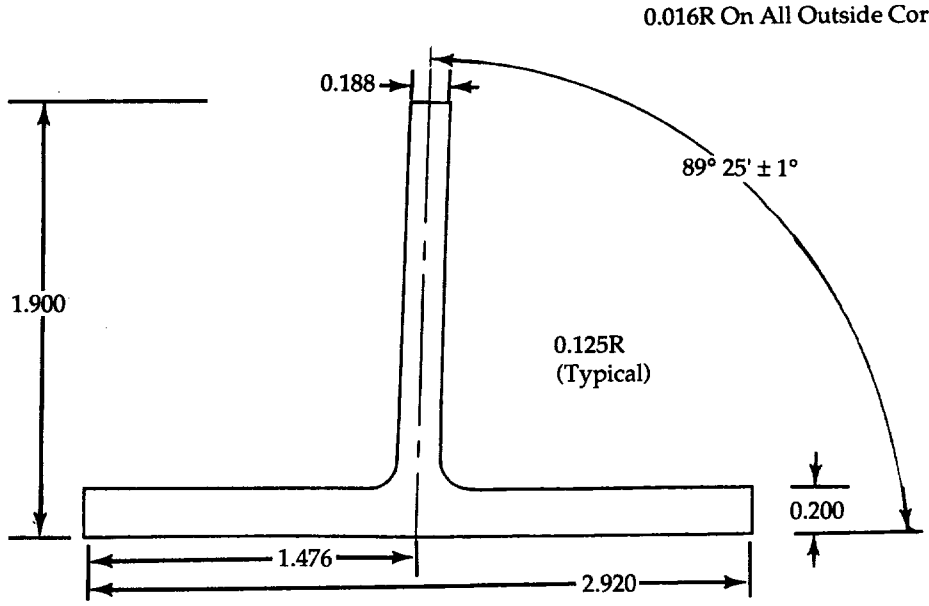
EXTRUDED STRINGER SPLICE S-748

Extrusions and Formed Sections
Figure 1 (Sheet 54)



Extrusion Die No.: Pioneer Aluminum Inc. PA32173
Material: 2024-T3511
Specification: QQ-A-200/3

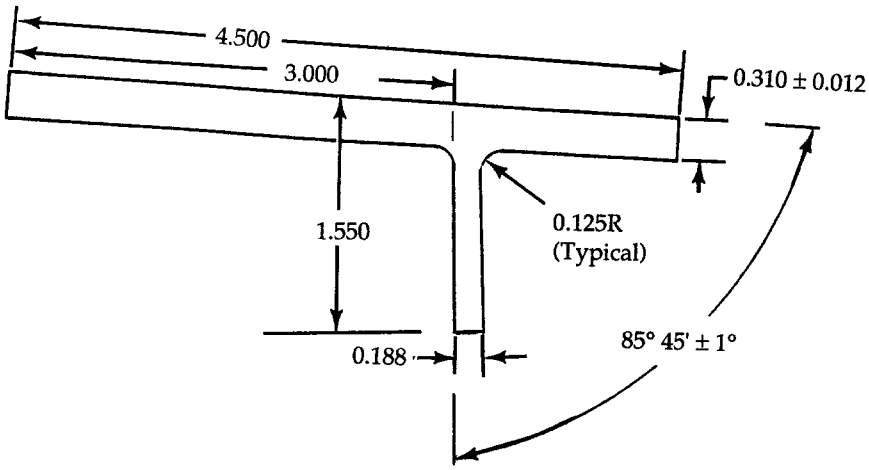
EXTRUDED TEE S-759



Extrusion Die No.: Pioneer Aluminum Inc. PA32176
Material: 7075-T3511
Specification: QQ-A-200/11

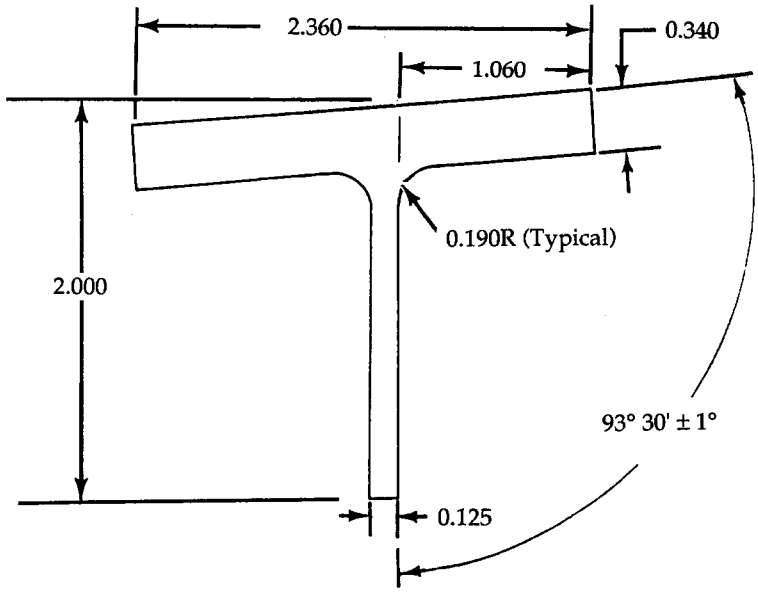
EXTRUDED TEE S-762

Extrusions and Formed Sections
Figure 1 (Sheet 55)



Extrusion Die No.: Pioneer Aluminum Inc. PA32177
Material: 7075-T3511
Specification: QQ-A-200/11

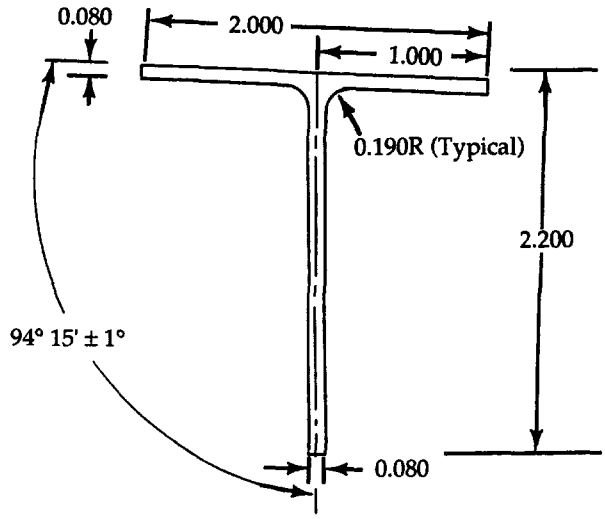
EXTRUDED TEE S-765



Extrusion Die No.: Pioneer Aluminum Inc. PA32180
Material: 7075-T3511
Specification: QQ-A-200/11

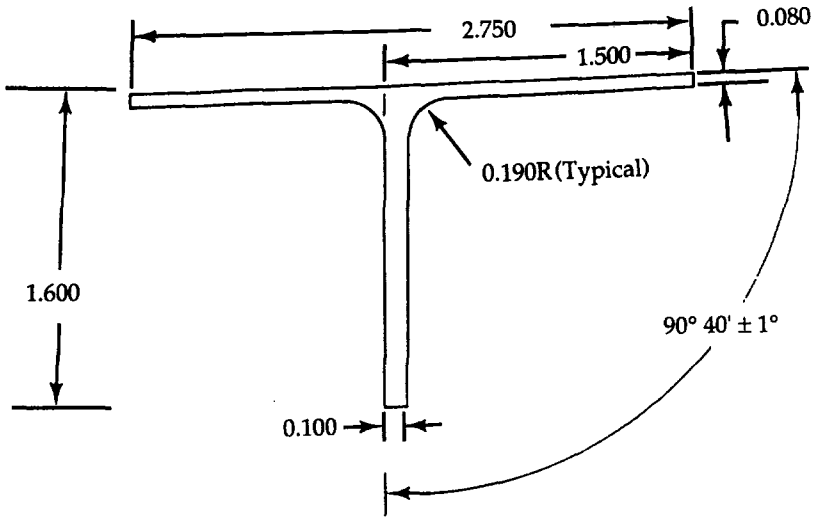
EXTRUDED TEE S-775

Extrusions and Formed Sections
Figure 1 (Sheet 56)



Extrusion Die No.: Pioneer Aluminum Inc. PA32181
Material: 7075-T3511
Specification: QQ-A-200/11

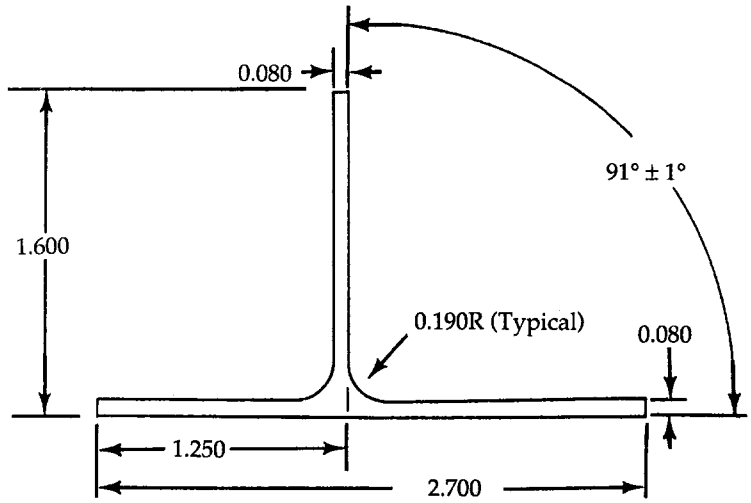
EXTRUDED TEE S-776



Extrusion Die No.: Alcoa 32182
Material: 7075-T3511
Specification: QQ-A-200/11

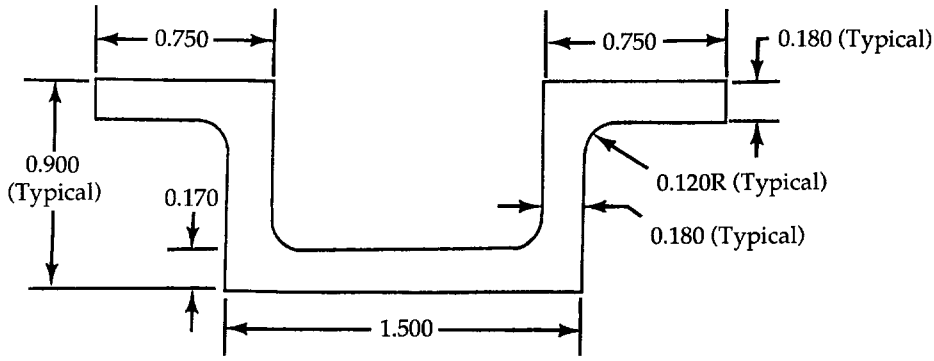
EXTRUDED TEE S-777

Extrusions and Formed Sections
Figure 1 (Sheet 57)



Extrusion Die No.: Pioneer Aluminum Inc. PA32183
Material: 7075-T3511
Specification: QQ-A-200/11

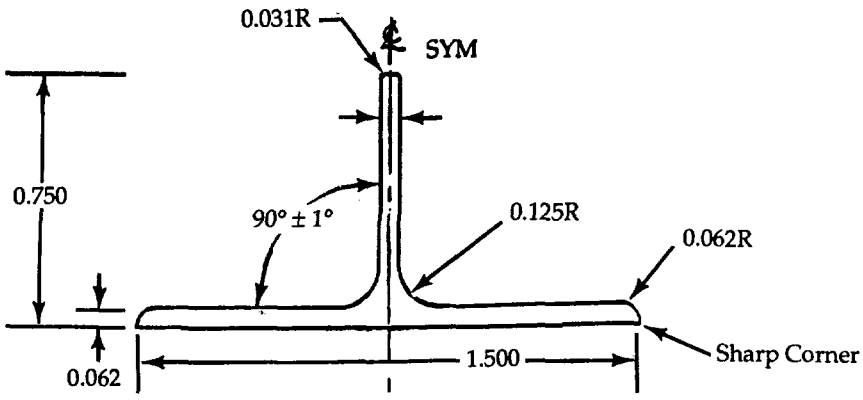
EXTRUDED TEE S-778



Extrusion Die No.: N/A
Material: 7075-T3511
Specification: QQ-A-200/11

EXTRUDED HAT SECTION S-783

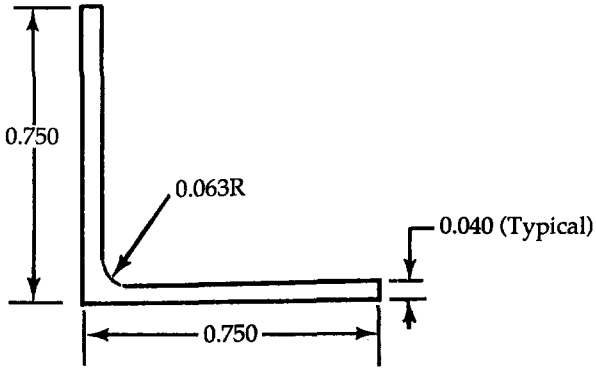
Extrusions and Formed Sections
Figure 1 (Sheet 58)



Extrusion Die No.: AND10136-1401
Material: 2024-T3511
Specification: QQ-A-267

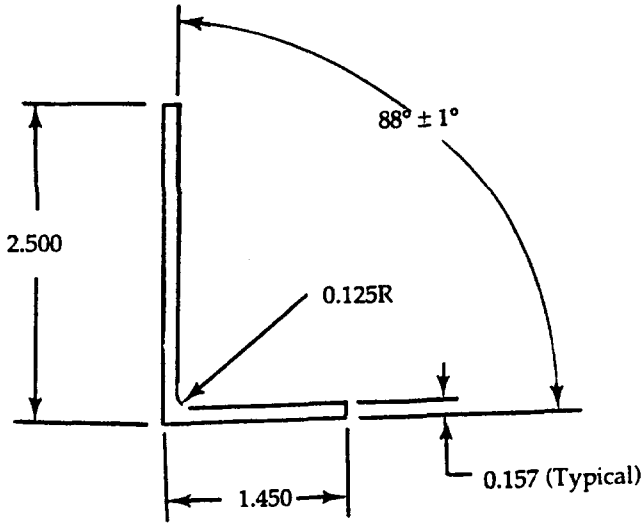
EXTRUDED TEE S-787

Extrusions and Formed Sections
Figure 1 (Sheet 59)



Extrusion Die No.: Pioneer Aluminum Inc. PA4026 or Pimalco 50087 or Tiernay 60-3754
Material: 2024-T3511
Specification: QQ-A-200/3

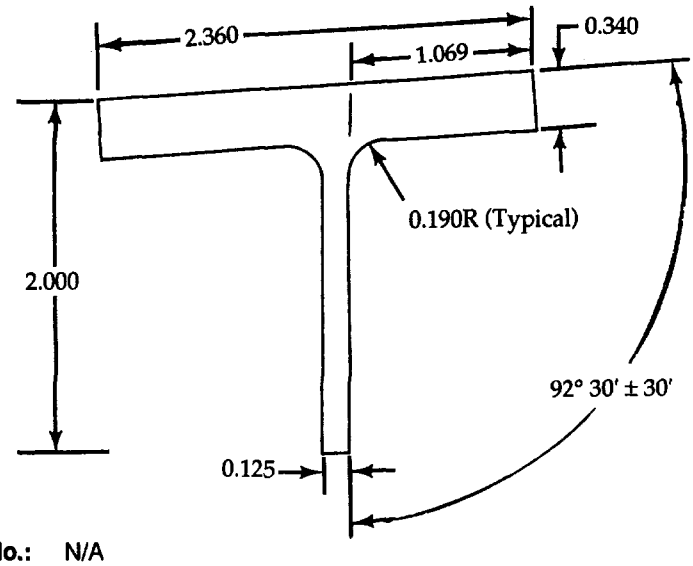
EXTRUDED ANGLE S-5001



Extrusion Die No.: Martin Marietta 69359
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

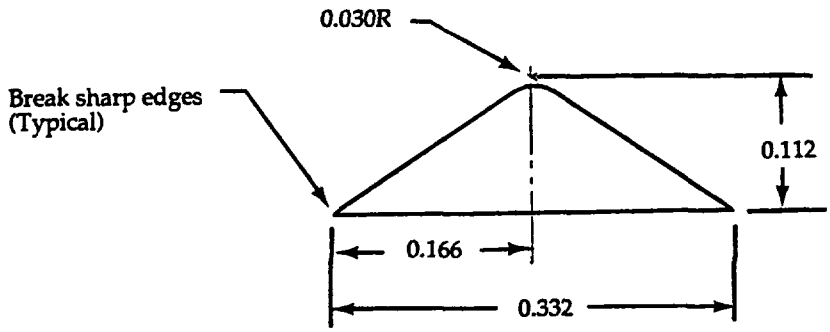
EXTRUDED ANGLE S-5017

Extrusions and Formed Sections
Figure 1 (Sheet 60)



Extrusion Die No.: N/A
Material: 7075-T73511
Specification: QQ-A-200/11

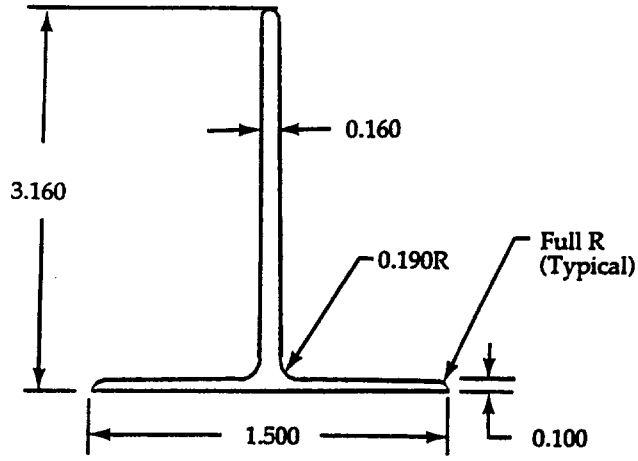
EXTRUDED TEE S-5022



Extrusion Die No.: Pioneer Aluminum Inc. PA33576
Material: 6061-T6511 or 6063-T6
Specification: QQ-A-200/8 (for 6061) or QQ-A-200/9 (for 6063)

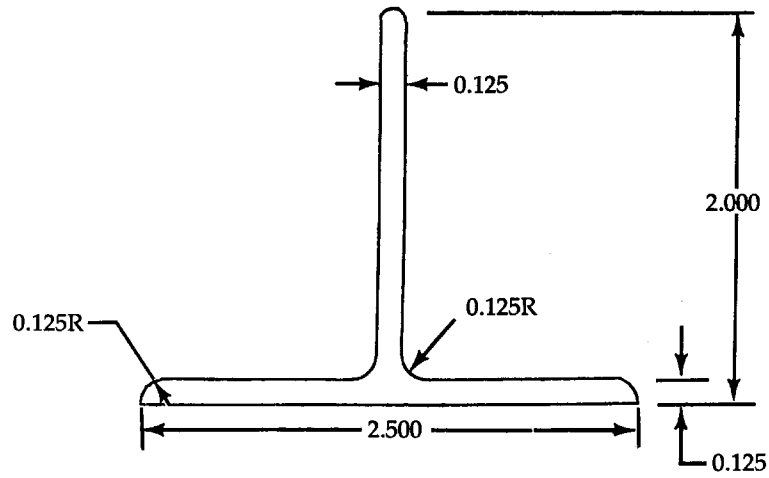
EXTRUDED SHAPE S-5075

Extrusions and Formed Sections
Figure 1 (Sheet 61)



Extrusion Die No.: Pioneer Aluminum Inc. PA33573, Alcoa 373892
Material: 6061-T6511
Specification: QQ-A-200/8

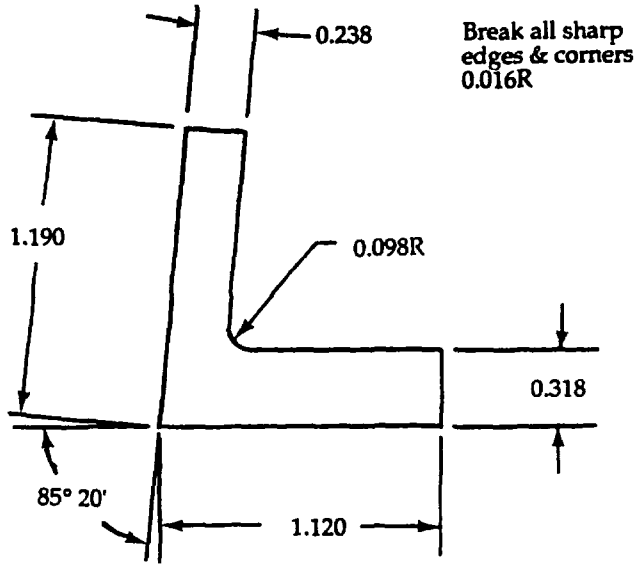
EXTRUDED TEE S-5078



Extrusion Die No.: AND10136-2407
Material: 2024-T3511
Specification: QQ-A-200/3

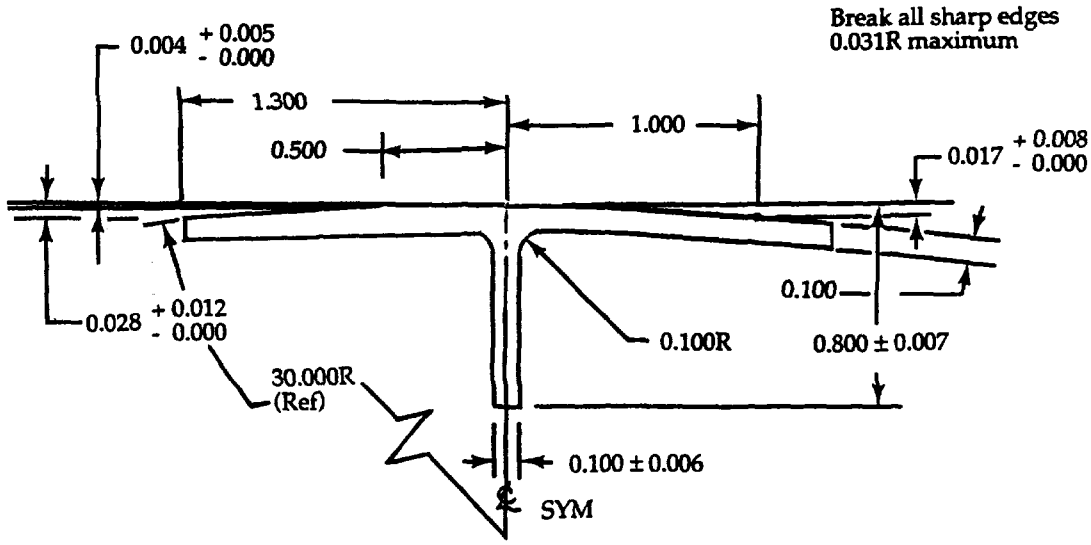
EXTRUDED TEE S-5088

Extrusions and Formed Sections
Figure 1 (Sheet 62)



Extrusion Die No.: Alcoa 389282
Material: 7050-T3511
Specification: AMS 4341

EXTRUDED ANGLE S-5091



Extrusion Die No.: Alcoa 390672
Material: 2024-T3511
Specification: QQ-A-267 or QQ-A-200/3

EXTRUDED TEE S-5093

Extrusions and Formed Sections
Figure 1 (Sheet 63)

METAL PARTS - REPAIR AND PROTECTION

1. HEAT TREATMENT OF ALUMINUM ALLOY
   A. Heat treating is required for the fabrication of some aluminum parts used on the Learjet. These processes are required to give the parts the physical characteristics they need for the situations to which they are applied. These characteristics include, but are not limited to, strength and malleability.
   B. Heat treating processes include annealing, solution heat treating, and aging.
   C. Aluminum alloy parts shall be heat treated per AMS2770.

2. HEAT TREATMENT OF STEEL ALLOYS
   A. Steel alloys shall be heat treated per MIL-H-6875.

SEALING METAL - STRUCTURAL REPAIR

1. DESCRIPTION
   A. Sealing of the aircraft is required to eliminate leakage of air pressure, liquids, dust, and heat through the airframe structure.
   B. This section provides sealing procedures and the equipment necessary for performing maintenance on the aircraft.

2. TOOLS AND EQUIPMENT
   A. The following materials have been found to be the most efficient in their applications and must not be interchanged.
   B. Sealant

NAME	PART NUMBER	MANUFACTURER	USE
		SEALANTS	
Sealant	Class A	Products Research & Chemical Corp. 5430 San Fernando Rd P.O. Box 1800 Glendale, CA 91209	Fay and hole sealing
Sealant	Pro-Seal 890 (MIL-S-8802) Class B-1/2 Class B-2 Class B-4	Products Research & Chemical Corp.	Fillet, injection, fay, and hole sealing within 1/2-, 2-, or 4-hour work life
Sealant	Pro-Seal 890 (MIL-S-8802) Class C-24 Class C-48 Class C-80	Products Research & Chemical Corp.	Fay sealing within 24-, 48-, or 80-hour squeeze-out life
Sealant	Pro-Seal 890 (MIL-S-8802)	Products Research & Chemical Corp.	Sealing in wet fuel areas only
		SOLVENTS	
Methyl Ethyl Ketone (MEK)	TT-M-261	Commercially available	
Toluene, Type II	TT-N-95	Commercially available	
Aliphatic Naptha, Type II	TT-N-95	Commercially available	

LES1039

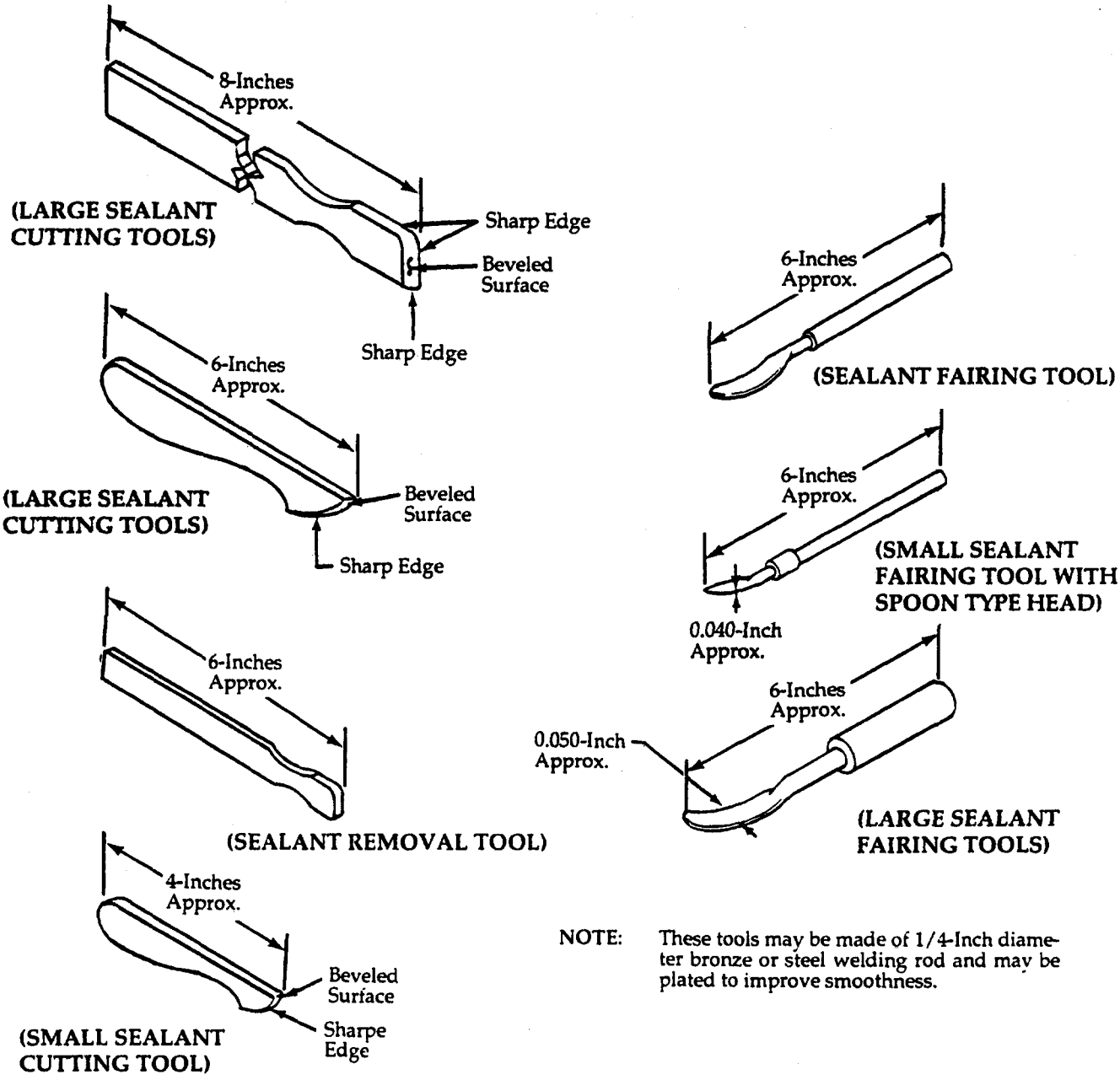
NAME	PART NUMBER	MANUFACTURER	USE
	TOOLS		
Sealant Removal and Cutting Tools	(See Figure 1.)	Fabricated locally	
Sealant Fairing Tools	(See Figure 1.)	Fabricated locally	
Stiff Bristle Brushes	(Not nylon)	Commercially available	
Solvent Dispensers	(Polyethylene squirt bottle)	Commercially available	
Sealant Gun	Semco No. 250		
Polyethylene Nozzles	(For Sealant Gun)		
Polyethylene Cartridges	(For Sealant Gun)		
	MATERIALS		
Lint-Free Clean White Cotton Cloth			
Vinyl Plastic Tape	CT-93 (0.010" x 1")	Borden Chemical Company	
Lint-Free White Cotton Gloves		Commercially available	
Masking Tape		Commercially available	
Parting Agent	Rezolin 8300 or 832A	Rezolin, a Division of Hexcel Corp.	
Clean Gauze		Commercially available	
Lubricant	Shell L-73101 or Mobil Jet 35	Commerically available	

3. PREPARATION OF FAYING SURFACES PRIOR TO SEALING

A. Cleaning

(1) Clean existing aluminum alloy parts and repair parts in accordance with 51-30-04.

(2) Immediately prior to applying sealant clean metal surfaces with 1,1,1, trichloroethane (MIL-T-81533) or methyl ethyl ketone (MEK). Apply solvent with a damp cloth and wipe dry with a lint-free, clean, white, cotton cloth.



NOTE: These tools should be made of hardwood to reduce the possibility of structural damage.

NOTE: These tools may be made of 1/4-Inch diameter bronze or steel welding rod and may be plated to improve smoothness.

Repro

Sealant Cutting and Fairing Tools
Figure 1

WARNING: SPECIAL PRECAUTIONS SHOULD BE OBSERVED DURING CLEANING. CLEANING SOLVENTS ARE TOXIC AND FLAMMABLE. FRESH AIR MASKS AND/OR ADEQUATE VENTILATION SHOULD BE AVAILABLE IN ALL CLOSED AREAS.

NOTE:
- Never pour or spray cleaning solvent on aircraft structure. If this is done, the solvent may run back between structure layers, then after cleaning is completed, solvent may creep back out and contaminate previously cleaned surface.
- Use lint-free, clean, white, cotton cloth to ensure that no dye residue is left on treated surfaces.

(3) Thoroughly scrub the area to be sealed. Extreme care shall be exercised to clean inaccessible corners, gaps, etc. A small paint brush or pipe cleaners may be used for these areas. Always clean an area larger than that required for the sealant.
(4) Before solvent has evaporated, wipe area dry with a lint-free, clean, white, cotton cloth.
(5) Repeat steps (3) and (4) until no discoloration is evident on the drying cloth.

NOTE: If some primer is removed during cleaning, the exposed metal surface need not be further treated provided the cleaning is accomplished per steps (3), (4), and (5). However, if primer is completely removed, reprime surface after completion of all sealing.

(6) After surfaces are thoroughly cleaned, personnel should wear lint-free, clean, white, cotton gloves to prevent surface contamination while applying sealant.

4. TYPES AND CLASSES USED FOR SEALING
   A. The following is a list of metal bonding uses, and required sealants.
      (1) Fay seal with Class A, Class B, or Class C sealant.
      (2) Fillet seal with Class B sealant.
      (3) Injection seal with Class B sealant.
      (4) Hole fill with Class A or machine-mixed Class B sealant.

5. SEALING REQUIREMENTS
   A. Metals finished with epoxy primers shall have aged a minimum of 48 hours prior to sealant application.
   B. Fay sealed joints must be closed and securely fastened before work life expiration.
   C. Threaded fasteners which have been shank or underhead sealed shall not be retorqued after expiration of application time.
   D. Joints shall not be flexed until sealant is tack-free.

6. SEALING APPLICATION FOR STRUCTURAL REPAIRS
   A. Mix sealant in accordance with the manufacturer's instructions, or refer to Chapter 20 in the applicable Learjet Maintenance Manual for mixing, handling, and application.
   B. Apply sealant to cleaned areas.
   C. Install all fasteners within work life of the sealant.
   D. Allow sealant to cure. Cure times may be accelerated by heat application.
   E. Fillet seals may be applied to all edges of repaired and original parts. Fair-in sealant with a fairing tool so a continuous smooth fillet is formed.

7. METHOD OF APPLICATION
   A. Sealant material may be applied with a brush, an extrusion gun, or a spatula. Each method works best in a particular situation. The following paragraphs describe these methods and the situations in which they are used.
      (1) A stiff-bristled brush (not nylon) is used to apply the precoat of Class A sealant. Sealant shall be brushed thoroughly onto the surface and into the joint which is to be sealed.
      (2) Fillet, faying surface, and pre-pack seals may be applied with an extrusion gun. Injection seals must be applied with an extrusion gun. The extrusion gun uses air pressure to force the sealant material through a nozzle onto the surface or into the cavity to be sealed. Nozzles are available in different sized beads of extruded sealant. The nozzle tips may be shaped locally to produce a bead of sealant with the shape and dimensions to fit a specific job. Pre-pack seals are used to fill voids in structure which cannot be reached by the injection method. These voids are packed with sealant before they are closed by the assembly of the structure.
      (3) A spatula is used to spread sealant material for faying surface and pre-pack seals. Small repair fillet seals may be applied with a spatula if an extrusion gun is not available.

8. FILLET SEALING
   A. Repair Fillet Seal (See Figure 2.)
      (1) Use sealant cutting tools similar to those shown in Figure 1.
      (2) Cut faulty section from fillet. Slope cuts at ends of section so new sealant will lap remaining portions of old fillet in these areas. Avoid abrupt changes in cross section.

          NOTE: Remove enough sealant on both sides of defective area to be sure that remaining material is satisfactory.

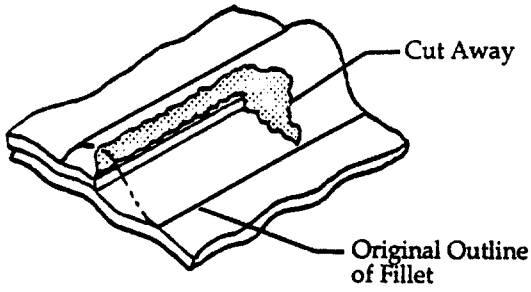
      (3) Examine all cut surfaces. Remove loose cuts or flaps. Make sure that no faulty sealant remains. If fillet adhesion is good, it is not necessary to cut sealant down to bare metal.
      (4) Refinish damaged surface if necessary.
      (5) Clean surface to be sealed.

          NOTE: If epoxy finish is removed in the fuel area during cleaning operation, it is permissible to seal directly over the bare metal. Touch up exposed areas after the sealant has been applied.

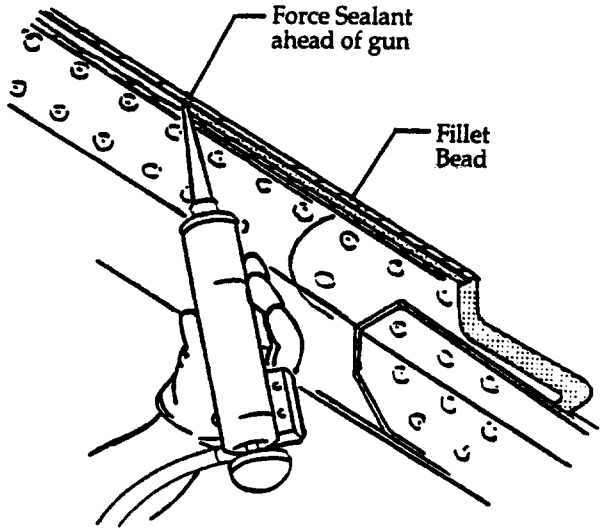
      (6) Apply new fillet seal.
   B. Repairing Fillet Sealed Fasteners
      (1) Leaking fastener fillet seals are repaired by replacing the faulty sealant. Proceed as follows:
         (a) Using a sealant cutting tool; cut around seal at base of fastener to separate sealant from structure.
         (b) Grasp seal with pliers, and pull up and away from fastener end. Most of seal should be removed by this process.
         (c) Cut away remaining sealant with cutting tool. Small quantities of sealant which adhere firmly to fastener need not be removed.

             NOTE: Tightening fasteners during or after sealing destroys sealant effectiveness.

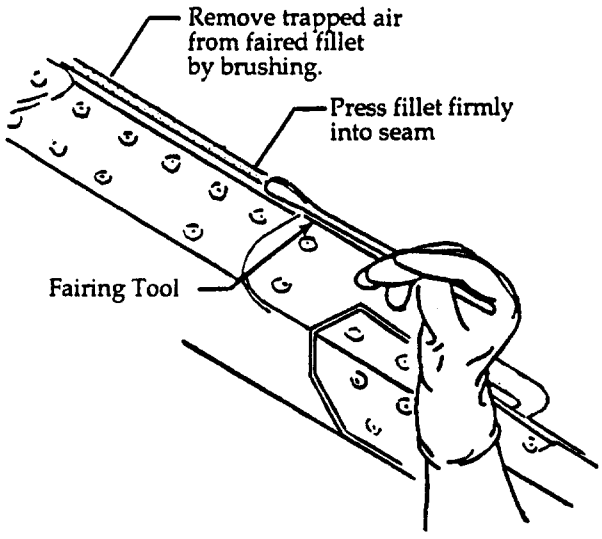
         (d) Clean fastener and surrounding area with cleaning solvent.
         (e) Using an extrusion gun or spatula, apply a coat of Class B sealant around and over fastener.
         (f) Work sealant with fairing tool until fillet seal dimensions given in Figure 2 are obtained.
         (g) Use extreme care to eliminate any visible voids or bubble areas around the fastener base.



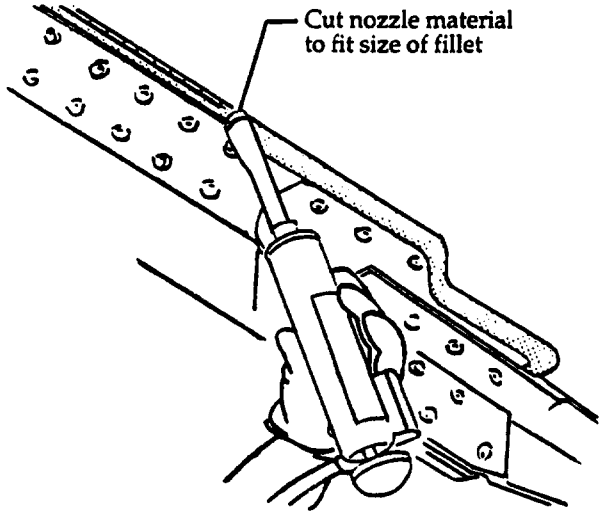
(FILLET SEAL REMOVAL)



(APPLICATION OF FIRST FILLET)



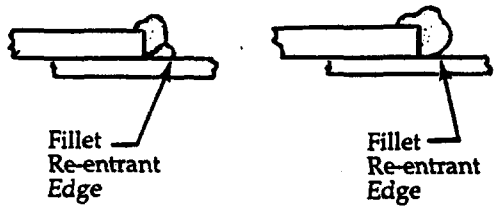
(PRESSING FIRST FILLET INTO SEAM)



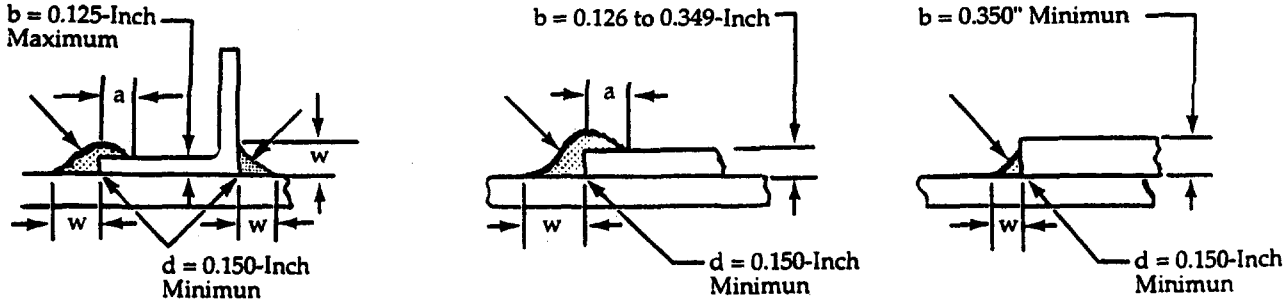
(APPLICATION OF FINAL SEALANT)

Repro

Fillet Sealing
Figure 2 (Sheet 1 of 2)



(RE-ENTRANT FILLET)



(VIEW A) (VIEW B) (VIEW C)

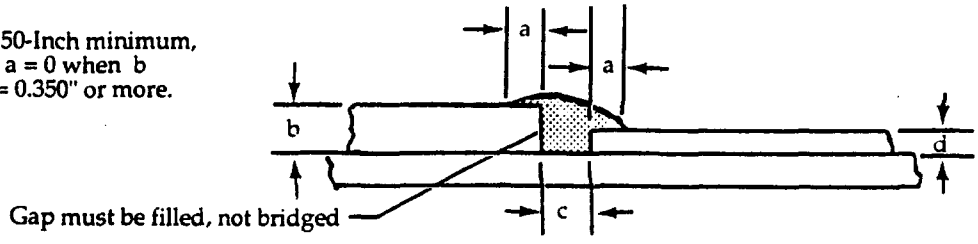
(FILLET DIMENSIONS)

For View A
w = 0.250" to 0.500"

For View B and C
w = 0.350" to 0.500"

a + b = w, except a = 0 when
b = 0.35 or more

b = 0.150-Inch minimum,
except a = 0 when b
and c = 0.350" or more.



(BUTT JOINT FILLER DIMENSIONS)

Repro

Fillet Sealing
Figure 2 (Sheet 2 of 2)

C. Apply New Fillet Seal (See Figure 2.)
(1) Prior to fillet sealing, all fasteners in the area to be sealed must be installed. All bolts must be torqued to their respective values as retorquing is not permitted after sealing. The proper nozzle for the sealing gun must also be used. If a small fillet is to be applied, use a small nozzle; a large fillet requires a large nozzle.
(2) With extrusion gun, apply a small fillet of Class B sealant as shown in Figure 2.
(3) When a nozzle tip is used, point it into the seam and maintain nearly perpendicular to the line of travel.

CAUTION: SEALANT MUST BE APPLIED CAREFULLY TO AVOID TRAPPING AIR IN FILLET. OPERATE GUN SO THAT A BEAD OF SEALANT IS CONTINUALLY FORCED AHEAD OF NOZZLE TIP, IN THE DIRECTION OF NOZZLE TRAVEL.

(4) Using a fillet fairing tool, press the first fillet firmly into position as shown. Work the entire beaded section.

CAUTION: CHECK THAT THE FAIRING TOOL IS ABSOLUTELY CLEAN. DO NOT USE SOLUTION OR LUBRICANT TO MAKE TOOL SLIDE SMOOTHLY OVER THE SEALANT. WIPE THE TOOL WITH CLEAN GAUZE FREQUENTLY TO AID IN THE FAIRING OPERATION.

(5) If the first fillet has cured but is not clean, then it must be cleaned before the application of the second fillet.
(6) Apply the second application of Class B sealant to produce a full-bodied fillet as shown. A larger nozzle will be required than was used for the first fillet. If an extruded nozzle head is used, make cuts in nozzle to fit fillet and make it conform to the dimensions given in Figure 2. If extruded head nozzle is not used, use a fairing tool as required to make sealant conform to the full-bodied fillet dimensions.

NOTE: Keep the sealing gun nozzle in direct contact with the work to prevent inclusion of air bubbles between fillets. Do not hurry. Good sealant application requires patience as well as proper technique. If a fillet extrusion head is used, the head shall be pressed firmly against the part in such a position that the maximum thickness of the fillet will be directly over the edge.

(7) Work out any evident air bubbles.
(8) Fillet re-entrant edges are not acceptable.
(9) A typical finished fillet seal with dimensions is shown in Figure 2.

9. INJECTION SEALING
A. Repair Injection Seal
(1) Remove sealant from short injection channels with a hooked wire and small cutting tools. Longer injection channels require disassembly of structure.
(2) Clean injection channel all the way through, since trapped air will prevent complete filling of the channel with sealant.
(3) Exercise care so that structure is not damaged during the removal process.
(4) Clean channel with cleaning solvent and pipe cleaners.

(5) Apply solvent with saturated pipe cleaner or brush. Wipe surface dry with pipe cleaner. Repeat until drying cleaner remains clean.
(6) Clean channel at least once more after visible evidence of impurities has been removed and the surfaces are thought to be clean.
(7) Apply new injection seal.

B. Apply New Injection Seal (See Figure 3.)
(1) To apply a new injection seal; a fairing tool, pipe cleaners, and an extrusion gun with an injection nozzle attached are required.
(2) Ensure that channel is thoroughly cleaned.
(3) Inject channel full, from one end only, with Class B sealant until sealant emerges from all other openings. Completely fill joggles and channels that require continuity of seal, or block off seal.

CAUTION: ENSURE GUN HAS ENOUGH SEALANT TO MAKE COMPLETE SEAL AT ONE INJECTION WITHOUT ANY BREAK. STOPPING AND STARTING WILL CAUSE AIR BUBBLES IN SEAL AND IS CAUSE FOR REJECTION OF JOB.

(4) Remove excess sealant with fairing tool and smooth out ends of seal.
(5) Inspect finished job, checking for poor adhesion and air bubbles. Any air bubble is cause for rejecting a seal. Rework only area that has bubbles.
(6) Check that the area where the sealant protrudes, into the fillet seal area, has no abrupt changes in section. Sealant must be faired out gradually into the area that is to be fillet sealed.

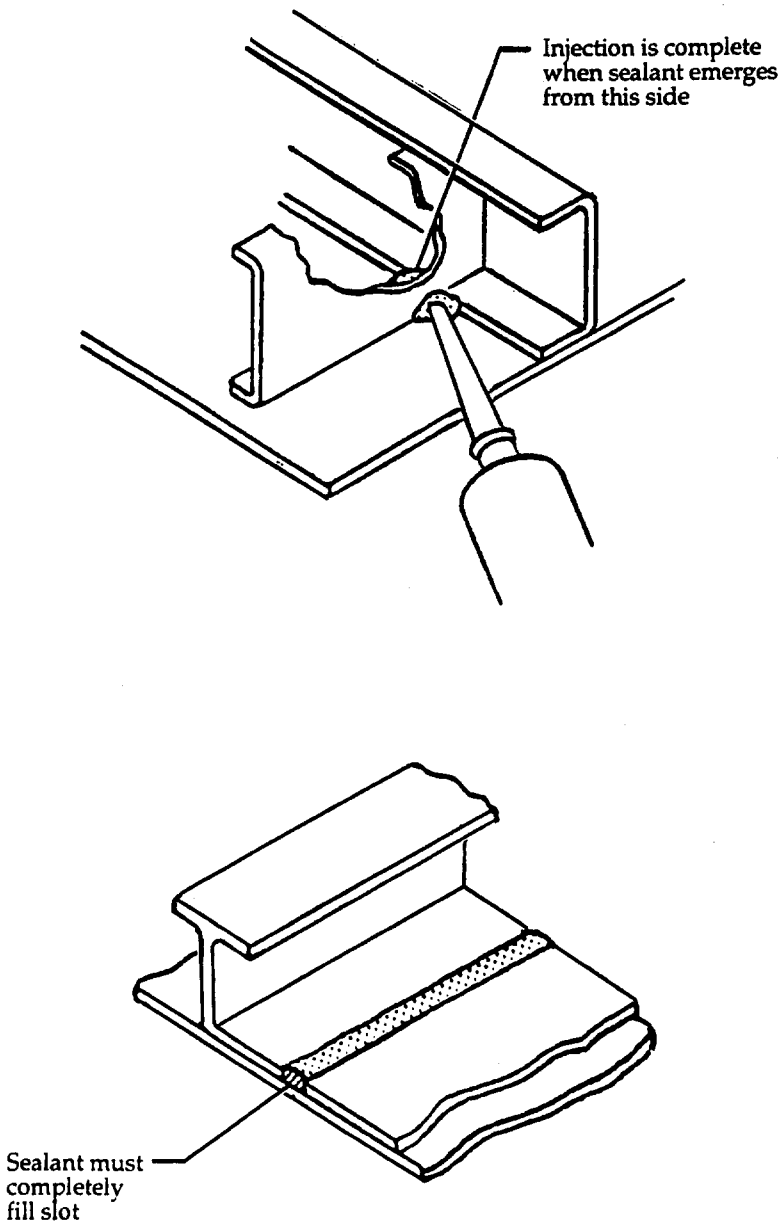
10. FAYING SURFACE SEALING

A. Repair Faying Surface Seal (See Figure 4.)
(1) Disassemble structure surrounding seal.
(2) Remove all sealant from faying surfaces with sealant cutting tools and suitable plastic scrapers.
(3) Refinish damaged surface.
(4) Clean faying surfaces with cleaning solvent.
(5) Apply a coat of Class B sealant to one faying surface with a roller, an extrusion gun, or a spatula. Spread the sealant over the entire surface to obtain a uniform coating.
(6) Removable seals shall be applied with the use of a parting agent. The parting agent shall be applied to one surface. Paint shall be omitted from this surface. When the parting agent is dry to the touch, the parts may be assembled with a faying surface seal. If the part is removed, the sealant shall be removed, new parting agent applied, and resealed.

NOTE: For Lightning Strike and Leak Preventive Seal Application on removable seals applied to wing fuel access covers, refer to Chapter 57.

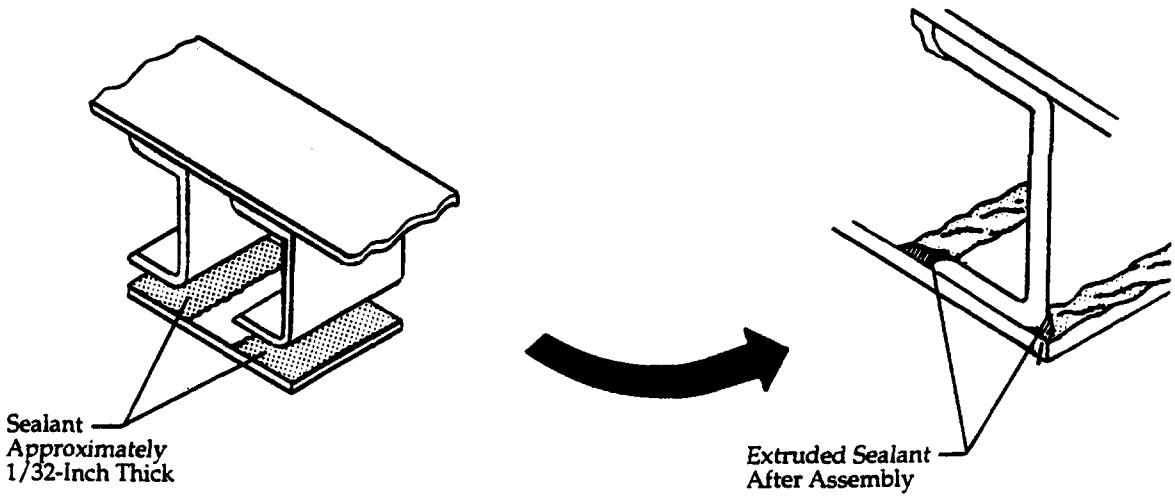
(7) Assemble parts within sealant work life.
(8) Fair out extruded sealant to leave a smooth fillet along joint.

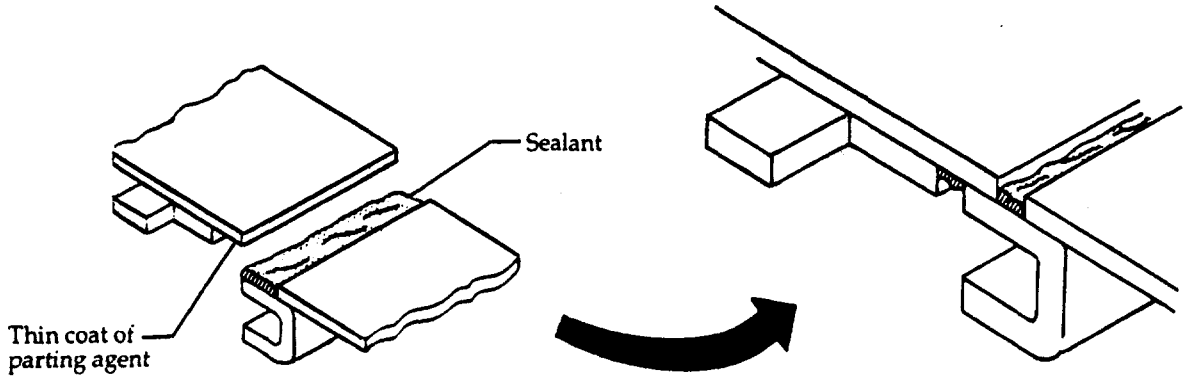
NOTE: Sufficient sealant must be applied to ensure a continuous extrusion on both sides of the joint after assembly of the faying surfaces.



Repro

Injection Sealing
Figure 3





Repro

Faying Surface Sealing
Figure 4

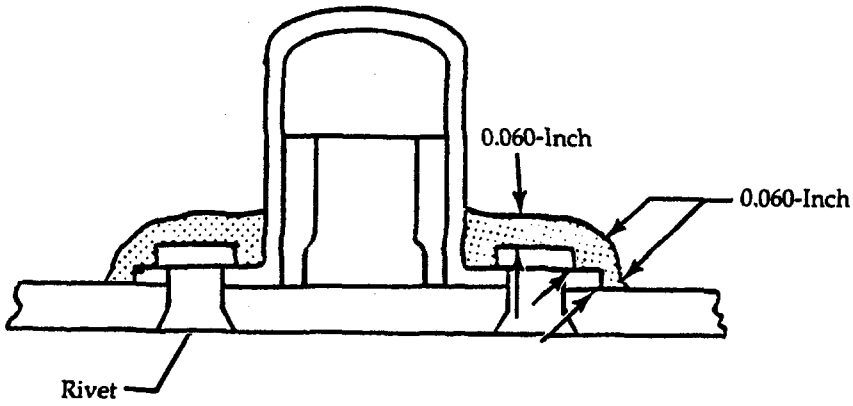
11. PRE-PACK SEALING
    A. Failed pre-pack and faying surface seals are normally repaired by raising the seal plane to isolate the failed seal from fuel. As an option, the structure surrounding the faulty seal can be disassembled, a new seal applied, and the structure reassembled. To replace a failed pre-pack seal, proceed as follows:
        (1) Disassemble structure surrounding seal.
        (2) Remove all sealant from pre-packed cavity with sealant cutting tools and suitable plastic scrapers.
        (3) Complete all preassembly operations such as hole drilling and deburring. Use Shell L-73101 or Mobil Jet 35, or equivalent lubricants for preassembly drilling or deburring operations.
        (4) Clean parts with cleaning solvent.
        (5) Apply a coat of Type B sealant to one of the parts. Shape sealant with a fairing tool to the general contours of the cavity.

            NOTE: Sufficient sealant must be applied to ensure complete filling of the cavity.

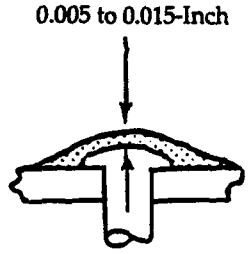
        (6) Assemble parts within sealant work life.

12. HOLE SEALING
    A. Seal Tooling and Coordination Holes
        (1) Plug tool and coordination holes with soft rivets.
        (2) Clean area to be sealed.
        (3) Apply Type A sealant over rivet and/or head. Sealant may also be applied to structure. Apply by brushing in two directions until a coating of 0.005- to 0.05-inch thickness is obtained.

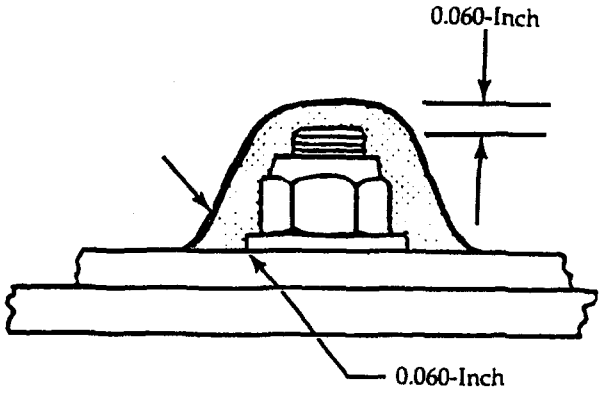
13. FASTENER SEALING
    A. Seal Nutplates, Nuts, Bolts, and Rivets as follows: (See Figure 5.)
        (1) Clean fastener and area around fastener.
        (2) Using an extrusion gun or spatula, apply Type B sealant around fastener. When sealing nutplates, ensure that attaching rivets are sealed.
        (3) Work sealant with a fairing tool to obtain fillet seal dimensions shown.
        (4) Use extreme care to eliminate any visible voids or bubble areas around base of fastener.



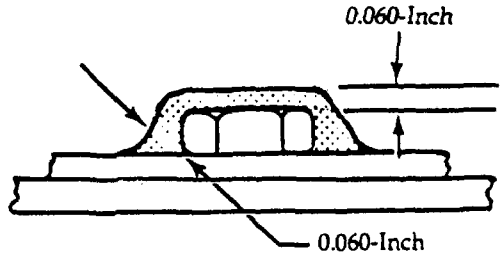
(DOME TYPE NUTPLATE)



(RIVET)



(NUT AND THREAD)



(BOLT HEAD)

Repro

Fastener Sealing
Figure 5

1. CHARTS AND TABLES

A. Charts and Tables

Charts and tables that provide the necessary data to accomplish the layout and fabrication of repair parts are presented as follows:

(1) Minimum Bend Radii Chart - Figure 1
(2) Bend Allowance Chart - Figure 2
(3) Setback Chart - Figure 3
(4) Drill Sizes and Decimal Equivalents - Figure 4
(5) Circumference Table - Figure 5
(6) Shop Mathematics - Figure 6

B. Special Tools

Locally manufactured special tools, and/or methods and procedures, are shown in Figures 7 through 10. The special tools/procedures provide methods of reducing the head size of flush rivets, picking up the location of blind or hidden fastener holes, locating hidden skin trim lines, and using drilled out heads of flush fasteners for fillers in dimpled or countersunk holes.

ALUMINUM

THICKNESS		2024-0	2024-T4	5052-0	5052-H34	6061-0	6061-T4	6061-T6	7075-0	7075-T6	7178-0	7178-T6
SHEET	0.012	1/32	1/16	–	–	–	–	–	–	–	–	–
	0.016	1/32	1/16	–	–	–	–	–	1/16	1/8	1/16	1/8
	0.020	1/32	1/16	1/32	1/32	–	–	–	1/16	1/8	1/16	1/8
	0.025	1/16	1/16	1/32	1/16	1/32	1/32	1/16	1/16	1/8	1/16	1/8
	0.032	1/16	3/32	1/16	1/16	1/32	1/32	1/16	1/16	1/8	1/16	5/32
	0.040	1/16	3/32	1/16	1/16	1/16	1/16	3/32	1/16	3/16	3/32	7/32
	0.051	1/16	1/8	1/16	3/32	1/16	1/16	3/32	3/32	1/4	1/8	9/32
	0.064	3/32	5/32	1/16	3/32	1/16	3/32	1/8	3/32	5/16	1/8	11/32
	0.072	1/8	7/32	–	–	–	–	–	5/32	3/8	3/16	13/32
	0.081	1/8	1/4	1/8	1/8	3/32	5/32	3/16	3/16	7/16	7/32	15/32
	0.091	1/8	9/32	1/8	3/16	3/32	3/16	7/32	1/4	1/2	9/32	17/32
	0.102	5/32	11/32	–	–	5/32	1/4	9/32	5/16	9/16	11/32	19/32
	0.125	3/16	7/16	5/32	7/32	5/32	1/4	9/32	11/32	3/4	3/8	13/16
	0.156	1/4	9/16	–	–	7/32	3/8	15/32	15/32	15/16	1/2	1
	0.188	11/32	27/32	5/32	1/4	7/32	3/8	15/32	9/16	1-1/8	19/32	1-3/16
PLATE	0.250	15/32	1-1/4	–	–	5/16	1/2	5/8	3/4	1-1/2	25/32	1-9/16
	OVER 0.250	2T*	5T*	–	–	1-1/2T*	2T*	2-1/2T*	3T*	6T*	3-1/2T*	6-1/2T*

STEEL

		CARBON STEEL				4130, 4137, 4340 AND 8630			
		1010		1020 AND 1095		NORMALIZED		ANNEALED	
THICKNESS		90°	180°	90°	180°	90°	180°	90°	180°
SHEET	0.010	–	–	–	–	–	–	–	–
	0.012	–	–	1/32	1/16	–	–	–	–
	0.016	–	–	1/32	1/16	–	–	–	–
	0.018	1/32	1/16	–	–	–	–	–	–
	0.020	–	–	1/32	1/16	1/16	3/32	–	–
	0.024	1/32	1/16	–	–	–	–	–	–
	0.025	–	–	1/16	3/32	1/16	3/32	–	–
	0.030	1/32	1/16	–	–	1/16	3/32	–	–
	0.032	–	–	1/16	3/32	–	–	–	–
	0.035	1/16	1/8	1/16	1/8	1/8	3/16	–	–
	0.036	1/16	1/8	–	–	–	–	–	–
	0.040	–	–	–	–	–	–	–	–
	0.042	–	–	1/16	1/8	1/8	3/16	–	–
	0.045	–	–	–	–	–	–	–	–
	0.048	1/16	1/8	–	–	–	–	–	–
	0.049	–	–	3/32	1/8	–	–	–	–
	0.050	–	–	–	–	1/8	3/16	–	–
	0.060	1/16	1/8	–	–	–	–	–	–
	0.063	–	–	–	–	1/8	3/16	–	–
	0.065	–	–	3/32	1/8	–	–	–	–
	0.072	–	–	1/8	3/16	–	–	–	–
	0.075	3/32	3/16	–	–	–	–	–	–
	0.078	–	–	–	–	5/32	1/4	–	–
	0.080	–	–	–	–	–	–	–	–
	0.083	–	–	1/8	3/16	5/32	1/4	–	–
	0.090	–	–	–	–	–	–	–	–
	0.093	–	–	–	–	3/16	3/8	3/32	5/32
	0.095	–	–	3/16	1/4	–	–	–	–
	0.104	1/8	1/4	–	–	–	–	–	–
	0.109	–	–	3/16	1/4	7/32	7/16	1/8	3/16
	0.112	–	–	–	–	–	–	–	–
	0.119	1/8	1/4	–	–	–	–	–	–
	0.120	–	–	3/16	1/4	–	–	–	–
	0.125	–	–	–	–	1/4	1/2	1/8	3/16
	0.134	3/16	3/8	1/4	3/8	–	–	–	–
	0.156	–	–	1/4	3/8	5/16	5/8	5/32	1/4
	0.188	–	–	5/16	3/8	3/8	3/4	3/16	9/32
PLATE	0.250	–	–	3/8	1/2	1/2	1	1/4	3/8
	OVER 0.250	–	–	1-1/2T*	2T*	1-1/2T*	5T*	1-1/2T*	2T*

*T = material thickness (round off bend radius to next largest 1/32.)

Minimum Bend Radii Chart
Figure 1 (Sheet 1 of 2)

CRES, INCONEL, AND TITANIUM

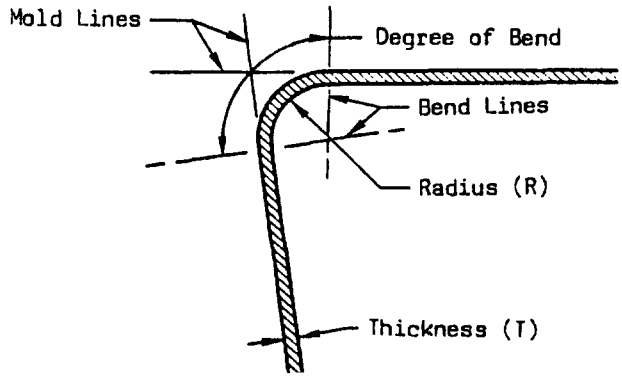
THICKNESS		AISI-302 AISI-321 AISI-347 ANNEALED 90°	AISI-302 AISI-321 AISI-347 ANNEALED 180°	AISI-302 1/2 HARD 90°	AISI-302 1/2 HARD 180°	350 17-7PH ANNEALED 90°	INCONEL INCONEL X ANNEALED 90°	19-9DL 19-9DX ANNEALED 90°	19-DL 19-9DX STRESS RELIEVED 90°	PURE AMS4900 AMS4901 NAS7123 90°	ALLOY AMS4908 NAS7125 90°
SHEET	0.010	–	–	1/32	1/16	–	–	–	–	–	–
	0.012	1/32	1/32	1/32	1/16	–	–	–	–	–	–
	0.016	1/32	1/32	1/32	1/16	–	–	–	–	1/16	–
	0.018	–	–	–	–	–	–	–	–	1/16	–
	0.020	1/32	1/16	1/16	3/32	1/16	1/32	1/16	1/16	1/16	–
	0.024	–	–	–	–	–	–	–	–	–	–
	0.025	1/32	1/16	1/16	3/32	1/16	1/32	1/16	1/16	3/32	1/8
	0.028	–	–	–	–	–	–	–	–	3/32	5/32
	0.030	–	–	–	–	–	–	–	–	–	–
	0.032	1/32	1/16	1/16	3/32	1/16	1/32	1/16	3/32	1/8	5/32
	0.035	–	–	–	–	–	–	–	–	–	–
	0.036	1/16	1/8	1/8	3/16	3/32	1/16	3/32	3/32	1/8	5/32
	0.040	1/16	1/8	1/8	3/16	3/32	1/16	3/32	1/8	1/8	3/16
	0.042	–	–	–	–	–	–	–	–	–	–
	0.045	1/16	1/8	1/8	3/16	–	–	–	–	5/32	3/16
	0.048	–	–	–	–	–	–	–	–	–	–
	0.049	–	–	–	–	–	–	–	–	–	–
	0.050	1/16	1/8	1/8	3/16	1/8	1/16	1/8	1/8	5/32	7/32
	0.056	–	–	–	–	–	–	–	–	3/16	1/4
	0.060	–	–	–	–	–	–	–	–	–	–
	0.063	1/16	1/8	1/8	3/16	1/8	1/16	1/8	5/32	3/16	9/32
	0.065	–	–	–	–	–	–	–	–	–	–
	0.071	–	–	–	–	–	–	–	–	1/4	3/8
	0.072	–	–	–	–	–	–	–	–	–	–
	0.075	–	–	–	–	–	–	–	–	–	–
	0.078	–	–	–	–	–	–	–	–	–	–
	0.080	3/32	3/16	3/16	5/16	3/16	3/32	1/4	9/32	9/32	13/32
	0.083	–	–	–	–	–	–	–	–	–	–
	0.090	3/32	3/16	3/16	5/16	3/16	3/32	9/32	5/16	5/16	15/32
	0.093	–	–	–	–	–	–	–	–	–	–
	0.095	–	–	–	–	–	–	–	–	–	–
	0.100	–	–	–	–	–	–	–	–	3/8	1/2
	0.104	–	–	–	–	–	–	–	–	–	–
	0.109	–	–	–	–	–	–	–	–	–	–
	0.112	1/8	1/4	1/4	3/8	1/4	1/8	3/8	13/32	13/32	9/16
	0.119	–	–	–	–	–	–	–	–	–	–
	0.120	–	–	–	–	–	–	–	–	–	–
	0.125	1/8	1/14	1/4	3/8	1/4	1/8	3/8	7/16	7/16	5/8
	0.134	–	–	–	–	–	–	–	–	–	–
	0.140	–	–	–	–	–	–	–	–	1/2	23/32
	0.156	–	–	–	–	–	–	–	–	–	–
	0.160	–	–	–	–	–	–	–	–	9/16	13/16
	0.180	–	–	–	–	–	–	–	–	21/32	29/32
PLATE	0.188	3/16	3/8	–	–	3/8	3/16	9/16	11/16	–	–
	0.190	–	–	–	–	13/32	3/16	5/8	11/16	–	–
	0.250	1/4	1/2	–	–	1/2	1/4	3/4	7/8	–	–
	OVER 0.250	2T*	2T*	–	–	2T*	1T*	–	–	–	–

*T = material thickness (round off bend radius to next largest 1/32.)

Minimum Bend Radii Chart
Figure 1 (Sheet 2 of 2)

The empirical formula for finding the allowance of material required for a bend = (0.01743 x radius) x (0.0078 x thickness).

This equals the material required for one degree of bend.



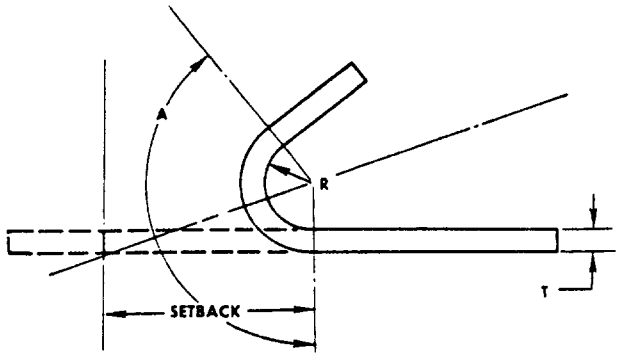
1. Multiply the numbers in the table by the degrees of bend to determine the amount of material required for the bend.
   Example:
   95 deg bend, 1/8 in. radius, 0.040 in. material
   0.00249 x 95 = 0.2365 in.
2. For bends larger than one inch radius, the amount of material required for the bend is calculated as the arc of a circle, the radius of which is taken to the center of the material.
   Example:
   90 deg bend, 1 in. radius, 0.064 in. material.
   Radius to center of material = bend radius (1 in.) + 1/2 material thickness = 1 + 0.032 = 1.032 in.

$$\text{Circumference of arc} = \text{x} \quad \frac{\text{R x degree of bend}}{\text{360 (total degrees in circle)}}$$

BEND ALLOWANCE COEFFICIENTS FOR ALUMINUM ALLOYS, BASED ON ONE-DEGREE ANGLE

	METAL THICKNESS											
RADII	0.016	0.020	0.022	0.025	0.032	0.040	0.050	0.063	0.080	0.090	0.125	0.180
1/32	0.00067	0.00070	0.00072	0.00074	0.00079	0.00086	0.00094	0.00104	0.00117	0.00125	0.00154	0.00200
1/16	0.00121	0.00125	0.00126	0.00129	0.00135	0.00140	0.00149	0.00159	0.00171	0.00180	0.00209	0.00255
3/32	0.00176	0.00179	0.00180	0.00183	0.00188	0.00195	0.00203	0.00213	0.00226	0.00234	0.00263	0.00309
1/8	0.00230	0.00234	0.00235	0.00238	0.00243	0.00249	0.00258	0.00268	0.00281	0.00289	0.00317	0.00364
5/32	0.00285	0.00288	0.00290	0.00292	0.00297	0.00304	0.00312	0.00322	0.00335	0.00343	0.00372	0.00418
3/16	0.00339	0.00342	0.00344	0.00347	0.00352	0.00358	0.00367	0.00377	0.00390	0.00398	0.00426	0.00473
7/32	0.00394	0.00397	0.00398	0.00401	0.00406	0.00412	0.00421	0.00431	0.00444	0.00452	0.00481	0.00527
1/4	0.00448	0.00451	0.00454	0.00456	0.00461	0.00467	0.00476	0.00486	0.00499	0.00507	0.00535	0.00582
9/32	0.00503	0.00506	0.00507	0.00510	0.00515	0.00521	0.00530	0.00540	0.00553	0.00561	0.00590	0.00636
5/16	0.00557	0.00560	0.00562	0.00564	0.00570	0.00576	0.00584	0.00595	0.00608	0.00616	0.00644	0.00691
11/32	0.00612	0.00615	0.00616	0.00619	0.00624	0.00630	0.00639	0.00649	0.00662	0.00670	0.00699	0.00745
3/8	0.00666	0.00669	0.00671	0.00673	0.00679	0.00685	0.00693	0.00704	0.00717	0.00725	0.00753	0.00800
13/32	0.00721	0.00724	0.00725	0.00728	0.00733	0.00739	0.00748	0.00758	0.00771	0.00779	0.00808	0.00854
7/16	0.00775	0.00778	0.00780	0.00782	0.00787	0.00794	0.00802	0.00812	0.00826	0.00834	0.00862	0.00908
15/32	0.00829	0.00833	0.00834	0.00837	0.00842	0.00848	0.00857	0.00867	0.00880	0.00888	0.00917	0.00963
1/2	0.00884	0.00887	0.00889	0.00891	0.00896	0.00903	0.00911	0.00921	0.00935	0.00943	0.00971	0.01017
17/32	0.00938	0.00942	0.00943	0.00946	0.00951	0.00957	0.00966	0.00976	0.00989	0.00997	0.01025	0.01072
9/16	0.00993	0.00996	0.00998	0.01000	0.01005	0.01012	0.01020	0.01030	0.01043	0.01051	0.01080	0.01126
19/32	0.01047	0.01051	0.01052	0.01055	0.01058	0.01065	0.01073	0.01083	0.01098	0.01105	0.01133	0.01179
5/8	0.01102	0.01105	0.01107	0.01109	0.01114	0.01121	0.01129	0.01139	0.01152	0.01160	0.01189	0.01235
21/32	0.01156	0.01160	0.01161	0.01164	0.01170	0.01175	0.01183	0.01193	0.01207	0.01214	0.01245	0.01289
11/16	0.01211	0.01214	0.01216	0.01218	0.01223	0.01230	0.01238	0.01248	0.01261	0.01269	0.01298	0.01344
23/32	0.01265	0.01268	0.01269	0.01273	0.01276	0.01283	0.01291	0.01301	0.01316	0.01322	0.01351	0.01397
3/4	0.01320	0.01323	0.01324	0.01327	0.01332	0.01338	0.01347	0.01357	0.01370	0.01378	0.01407	0.01453
25/32	0.01374	0.01378	0.01379	0.01381	0.01386	0.01392	0.01401	0.01411	0.01425	0.01432	0.01461	0.01507
13/16	0.01429	0.01432	0.01433	0.01436	0.01441	0.01447	0.01456	0.01466	0.01479	0.01487	0.01516	0.01562
27/32	0.01483	0.01486	0.01487	0.01490	0.01494	0.01501	0.01509	0.01519	0.01534	0.01540	0.01569	0.01615
7/8	0.01538	0.01541	0.01542	0.01545	0.01550	0.01556	0.01565	0.01575	0.01588	0.01596	0.01625	0.01671
29/32	0.01592	0.01595	0.01596	0.01599	0.01604	0.01610	0.01619	0.01629	0.01643	0.01650	0.01679	0.01727
15/16	0.01646	0.01650	0.01651	0.01654	0.01659	0.01665	0.01674	0.01684	0.01697	0.01705	0.01734	0.01780
31/32	0.01701	0.01704	0.01705	0.01708	0.01712	0.01718	0.01727	0.01737	0.01752	0.01758	0.01787	0.01833
1	0.01755	0.01759	0.01760	0.01763	0.01768	0.01774	0.01783	0.01793	0.01806	0.01814	0.01843	0.01888

Bend Allowance Chart
Figure 2



Example:

Angle of bend (A) = 140 deg
Material thickness (T) = 0.064 in.
Radius (R) = 0.125 in.
K - from table = 2.7475

SETBACK = K x (T + R) =
2.7475 x (0.064 + 0.125) =
2.7475 x 0.189 = 0.509
SETBACK = 0.509 in.

ANGLE DEGREE	K	ANGLE DEGREE	K	ANGLE DEGREE	K	ANGLE DEGREE	K	ANGLE DEGREE	K	ANGLE DEGREE	K
1	0.00873	31	0.27732	61	0.58905	91	1.0176	121	1.7675	151	3.8667
2	0.01745	32	0.28674	62	0.60086	92	1.0355	122	1.8040	152	4.0108
3	0.02618	33	0.29621	63	0.61208	93	1.0538	123	1.8418	153	4.1653
4	0.03493	34	0.30573	64	0.62487	94	1.0724	124	1.8807	154	4.3315
5	0.04366	35	0.31530	65	0.63707	95	1.0913	125	1.9210	155	4.5107
6	0.05241	36	0.32492	66	0.64941	96	1.1106	126	1.9626	156	4.7046
7	0.06116	37	0.33459	67	0.66188	97	1.1303	127	2.0057	157	4.9151
8	0.06993	38	0.34433	68	0.67451	98	1.1504	128	2.0503	158	5.1455
9	0.07870	39	0.35412	69	0.68728	99	1.1708	129	2.0965	159	5.3995
10	0.08749	40	0.36397	70	0.70021	100	1.1917	130	2.1445	160	5.6713
11	0.09629	41	0.37388	71	0.71329	101	1.2131	131	2.1943	161	5.9758
12	0.10510	42	0.38386	72	0.72654	102	1.2349	132	2.2460	162	6.3137
13	0.11393	43	0.39391	73	0.73996	103	1.2572	133	2.2998	163	6.6911
14	0.12278	44	0.40403	74	0.75355	104	1.2799	134	2.3558	164	7.1154
15	0.13165	45	0.41421	75	0.76733	105	1.3032	135	2.4142	165	7.5957
16	0.14054	46	0.42447	76	0.78128	106	1.3270	136	2.4751	166	8.1443
17	0.14945	47	0.43481	77	0.79543	107	1.3514	137	2.5386	167	8.7769
18	0.15838	48	0.44523	78	0.80978	108	1.3764	138	2.6051	168	9.5144
19	0.16734	49	0.45573	79	0.82434	109	1.4019	139	2.6746	169	10.385
20	0.17633	50	0.46631	80	0.83910	110	1.4281	140	2.7475	170	11.430
21	0.18534	51	0.47697	81	0.85408	111	1.4550	141	2.8239	171	12.706
22	0.19438	52	0.48773	82	0.86929	112	1.4826	142	2.9042	172	14.301
23	0.20345	53	0.49858	83	0.88472	113	1.5108	143	2.9887	173	16.350
24	0.21256	54	0.50952	84	0.90040	114	1.5399	144	3.0777	174	19.081
25	0.22169	55	0.52057	85	0.91633	115	1.5697	145	3.1716	175	22.904
26	0.23087	56	0.53171	86	0.93251	116	1.6003	146	3.2708	176	26.636
27	0.24008	57	0.54295	87	0.94896	117	1.6318	147	3.3759	177	38.188
28	0.24933	58	0.55431	88	0.96569	118	1.6643	148	3.4874	178	57.290
29	0.25862	59	0.56577	89	0.98270	119	1.6977	149	3.6059	179	114.590
30	0.26795	60	0.57735	90	1.00000	120	1.7320	150	3.7320	180	INFINITE

Setback Chart
Figure 3

TAP DRILL SIZES			
NC		NF	
Coarse Thread		Fine Thread	
SCREW SIZE	TAP DRILL	SCREW SIZE	TAP DRILL
7/16-14	U	7/16-20	25/64
1/2-13	27/64	1/2-20	29/64
9/16-12	31/64	9/16-18	33/64
5/8-11	17/32	5/8-18	37/64
11/16-11	19/32	11/16-11	5/8
3/4-10	21/32	3/4-16	11/16
13/16-10	23/32	7/8-14	13/16
7/8- 9	49/64	1 -14	15/16
15/16- 9	53/64	1-1/8-12	1-3/64
1- 8	7/8	1-14/-12	1-11/64
1-1/8- 7	63/64	1-1/2-12	1-27/64
1-1/4- 7	1-7/64	–	–
1-1/2- 6	1-11/32	–	–

MACHINE SCREW		
SCREW SIZE	DRILLS FOR	
	TAP	CLEARANCE
2-56	No. 50	No. 43
3-48	No. 47	No. 40
4-40	No. 43	No. 32
6-32	No. 36	No. 28
8-32	No. 29	No. 19
10-24	No. 25	No. 10
10-32	No. 21	No. 10
12-24	No. 16	7/32
1/4-20	No. 7	1/4
1/4-28	No. 3	1/4
5/16-18	F	5/16
5/16-24	I	5/16
3/8-16	5/16	3/8
3/8-24	Q	3/8

PIPE		
DIAMETER OF TAP	DRILLS FOR	
	TAP	CLEARANCE
1/8-27	11/32	7/16
1/4-18	7/16	7/16
3/8-18	37/64	3/4
1/2-14	23/32	7/8
3/4-14	59/64	1-3/16
1-11-1/2	1-5/32	1-7/16
1-1/4-11-1/2	1-1/2	1-3/4
1-1/2-11-1/2	1-47/64	2
2-11/1/2	2-7/32	2-1/2
2-1/2-8	2-5/8	3
3-8	3-1/4	3-3/4
3-1/2-8	3-3/4	4-1/4
4-8	4-1/4	4-3/4

DECIMAL EQUIVALENTS NUMBER, LETTER, AND FRACTIONAL SIZE DRILLS					
SIZE DRILL	DECIMAL	SIZE DRILL	DECIMAL	SIZE DRILL	DECIMAL
80	0.0135	1/8	0.1250	21/64	0.3281
79	0.0145	30	0.1285	Q	0.3320
1/64	0.0156	29	0.1360	R	0.3390
78	0.0160	28	0.1405	11/32	0.3437
77	0.0180	9/64	0.1406	S	0.3480
76	0.0200	27	0.1440	T	0.3580
75	0.0210	26	0.1470	23/64	0.3594
74	0.0225	25	0.1495	U	0.3680
73	0.0240	24	0.1520	3/8	0.3750
72	0.0250	23	0.1540	V	0.3770
71	0.0260	5/32	0.1562	W	0.3860
70	0.0280	22	0.1570	25/64	0.3906
69	0.0292	21	0.1590	X	0.3970
68	0.0310	20	0.1610	Y	0.4040
1/32	0.0313	19	0.1660	13/32	0.4062
67	0.0320	18	0.1695	Z	0.4130
66	0.0330	11/64	0.1719	27/64	0.4219
65	0.0350	17	0.1730	7/16	0.4375
64	0.0360	16	0.1770	29/64	0.4531
63	0.0370	15	0.1800	15/32	0.4687
62	0.0380	14	0.1820	31/64	0.4843
61	0.0390	13	0.1850	1/2	0.5000
60	0.0400	3/16	0.1875	33/64	0.5156
59	0.0410	12	0.1890	17/32	0.5312
58	0.0420	11	0.1910	35/64	0.5469
57	0.0430	10	0.1935	9/16	0.5625
56	0.0465	9	0.1960	37/64	0.5781
3/64	0.0469	8	0.1990	19/32	0.5937
55	0.0520	7	0.2010	39/64	0.6094
54	0.0550	13/64	0.2031	5/8	0.6250
53	0.0595	6	0.2040	41/64	0.6406
1/16	0.0625	5	0.2055	21/32	0.6562
52	0.0635	4	0.2090	43/64	0.6719
51	0.0670	3	0.2130	11/16	0.6875
50	0.0700	1/32	0.2187	45/64	0.7031
49	0.0730	2	0.2210	23/32	0.7187
48	0.0760	1	0.2280	47/64	0.7344
5/64	0.0781	A	0.2340	3/4	0.7500
47	0.0785	15/64	0.2344	49/64	0.7656
46	0.0810	B	0.2380	25/32	0.7812
45	0.0820	C	0.2420	51/64	0.7969
44	0.0860	D	0.2460	13/16	0.8125
43	0.0890	1/4	0.2500	53/64	0.8281
42	0.0935	F	0.2570	27/32	0.8437
3/32	0.0937	G	0.2610	55/64	0.8594
41	0.0960	17/64	0.2656	7/8	0.8750
40	0.0980	H	57/64	57/64	0.8906
39	0.0995	I	0.2720	29/32	0.9062
38	0.1015	J	0.2770	59/64	0.9219
37	0.0140	K	0.2811	15/16	0.9375
36	0.0165	9/32	0.2812	61/64	0.9531
7/64	0.1093	L	0.2900	31/32	0.9687
35	0.1100	M	0.2950	63/64	0.9844
34	0.1110	19/64	0.2968	1	1.000
33	0.1130	N	0.3020	–	–
32	0.1160	5/16	0.3125	–	–
31	0.1200	O	0.3160	–	–
–	–	P	0.3230	–	–

Drill Sizes and Decimal Equivalents
Figure 4

OF ONE INCH				INCHES OR FEET					
DIAMETER									
FRACTION	DECIMAL	CIRCUM.	AREA	DIA.	CIRCUM.	AREA	DIA.	CIRCUM.	AREA
1/64	0.015625	0.04909	0.00019	1	3.1416	0.7854	64	201.06	3216.99
1/32	0.03125	0.09818	0.00077	2	6.2832	3.1416	65	204.20	3318.31
3/64	0.046875	0.14726	0.00173	3	9.4248	7.0686	66	207.35	3421.19
1/16	0.0625	0.19635	0.00306	4	12.5664	12.5664	67	210.49	3525.65
5/64	0.078125	0.24545	0.00479	5	15.7080	19.635	68	213.63	3631.68
3/32	0.09375	0.29452	0.00690	6	18.850	28.274	69	216.77	3739.28
7/64	0.109375	0.34363	0.00939	7	21.991	38.485	70	219.91	3848.45
1/8	0.125	0.39270	0.01227	8	25.133	50.266	71	223.05	3959.19
9/64	0.140625	0.44181	0.01553	9	28.274	63.617	72	226.19	4071.50
5/32	0.15625	0.49087	0.01917	10	31.416	78.540	73	229.34	4185.39
11/64	0.171875	0.53999	0.02320	11	34.558	95.033	74	232.48	4300.84
3/16	0.1875	0.58905	0.02761	12	37.699	113.1	75	235.62	4417.86
13/64	0.203125	0.63817	0.03241	13	40.841	132.73	76	238.76	4536.46
7/32	0.21875	0.68722	0.03758	14	43.982	153.94	77	241.90	4656.63
15/64	0.234375	0.73635	0.04314	15	47.124	176.71	78	245.04	4778.36
1/4	0.25	0.78540	0.04909	16	50.265	201.06	79	248.19	4901.67
17/64	0.265625	0.83453	0.05542	17	53.407	226.98	80	251.33	5026.55
9/32	0.28125	0.88357	0.06213	18	56.549	254.47	81	254.47	5153.
19/64	0.296875	0.93271	0.06922	19	59.690	283.53	82	257.61	5281.02
5/16	0.3125	0.98175	0.07670	20	62.832	314.16	83	260.75	5410.61
21/64	0.328125	1.0309	0.08456	21	65.973	346.36	84	263.89	5541.77
11/32	0.34375	1.0799	0.09281	22	69.115	380.13	85	267.04	5674.50
23/64	0.359375	1.1291	0.10144	23	72.257	415.48	86	270.18	5808.80
3/8	0.375	1.1781	0.11045	24	75.398	452.39	87	273.32	5944.68
25/64	0.390625	1.2273	0.11984	25	78.540	490.87	88	276.46	6082.12
13/32	0.40625	1.2763	0.12962	26	81.681	530.93	89	279.60	6221.14
27/64	0.421875	1.3254	0.13979	27	84.823	572.56	90	282.74	6361.73
7/16	0.4375	1.3744	0.15033	28	87.965	615.75	91	285.88	6503.88
29/64	0.453125	1.4236	0.16126	29	91.106	660.52	92	289.03	6647.61
15/32	0.46875	1.4726	0.17257	30	94.248	706.86	93	292.17	6792.91
31/64	0.484375	1.5218	0.18427	31	97.389	754.77	94	295.31	6939.78
1/2	0.5	1.5708	0.19635	32	100.53	804.25	95	298.45	7088.22
33/64	0.515625	1.6199	0.20880	33	103.67	855.30	96	301.59	7238.23
17/32	0.53125	1.6690	0.22166	34	106.81	907.92	97	304.73	7389.81
35/64	0.546875	1.7181	0.23489	35	109.96	962.11	98	307.88	7542.96
9/16	0.5625	1.7671	0.24850	36	113.10	1017.88	99	311.02	7697.69
37/64	0.578125	1.8163	0.26248	37	116.24	1075.25	100	314.16	7853.98
19/32	0.59375	1.8653	0.27688	38	119.38	1134.11	101	317.30	8011.85
39/64	0.609375	1.9145	0.29164	39	122.52	1194.59	102	320.44	8171.28
5/8	0.625	1.9635	0.30680	40	125.66	1256.64	103	323.58	8332.29
41/64	0.640625	2.0127	0.32232	41	128.81	1320.25	104	326.73	8494.87
21/32	0.65625	2.0617	0.33824	42	131.95	1385.44	105	329.87	8659.01
43/64	0.671875	2.1108	0.35453	43	135.09	1452.20	106	333.01	8824.73
11/16	0.6875	2.1598	0.37122	44	138.23	1520.53	107	336.15	8992.02
45/64	0.703125	2.2090	0.38828	45	141.37	1590.43	108	339.29	9160.88
23/32	0.71875	2.2580	0.40574	46	144.51	1661.90	109	342.43	9331.32
47/64	0.734375	2.3072	0.42356	47	147.65	1734.94	110	345.58	9503.32
3/4	0.75	2.3562	0.44179	48	150.80	1809.56	111	348.72	9676.89
49/64	0.765625	2.4054	0.46038	49	153.94	1885.74	112	351.86	9852.03
25/32	0.78125	2.4544	0.47937	50	157.08	1963.50	113	355.00	10028.75
51/64	0.796875	2.5036	0.49872	51	160.22	2042.82	114	358.14	10207.03
13/16	0.8125	2.5525	0.51849	52	163.36	2123.72	115	361.28	10386.89
53/64	0.828125	2.6017	0.53862	53	166.50	2206.18	116	364.42	10568.32
27/32	0.84375	2.6507	0.55914	54	169.65	2290.22	117	367.57	10751.32
55/64	0.859375	2.6999	0.58003	55	172.79	2375.83	118	370.71	10935.88
7/8	0.875	2.7489	0.60132	56	175.93	2463.01	119	373.85	11122.02
57/64	0.890625	2.7981	0.62298	57	179.07	2551.76	120	376.99	11309.73
29/32	0.90625	2.8471	0.64504	58	182.21	2642.08	121	380.13	11499.01
59/64	0.921875	2.8959	0.66748	59	185.35	2733.97	122	383.27	11689.87
15/16	0.9375	2.9452	0.69029	60	188.50	2827.43	123	386.42	11882.29
61/64	0.953125	2.9945	0.71349	61	191.64	2922.47	124	389.56	12076.28
31/32	0.06875	3.0434	0.73708	62	194.78	3019.07	125	392.70	12271.85
63/64	0.984375	3.0928	0.76097	63	197.92	3117.25	126	395.84	12468.98

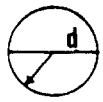
Diameter multiplied by 3.1416 equals circumference. Circumference multiplied by 0.3183 equals diameter.
Square of the diameter multiplied by 0.7854 equals area.

Circumference Table
Figure 5

SPHERE

VOLUME = $\frac{4}{3}\pi r^3 = \pi\frac{d^3}{6}$

AREA = $4\pi r^2 = \pi d^2$



CONE

VOLUME (OF EITHER) = $\frac{1}{3}\pi r^2 h$

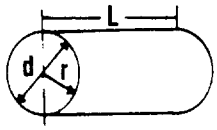
AREA (OF RIGHT CONE) = πrs



CYLINDER

VOLUME = $\pi r^2 L = 0.7854 D^2 L$

AREA OF CYLINDRICAL SURFACE = πDL

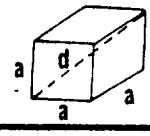


CUBE

VOLUME = a^3

DIAGONAL = $d = a\sqrt{3}$

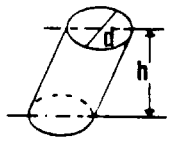
TOTAL AREA = $6a^2$



CYLINDER

VOLUME = (area base) h

AREA OF CYLINDRICAL SURFACE = (perimeter base) h

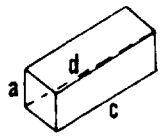


RECTANGULAR PRISM

VOLUME = (area of end) C
= abc

DIAGONAL = $d = \sqrt{a^2 + b^2 + c^2}$

TOTAL AREA = $2(ab + bc + ca)$



CONVERSION OF DECIMAL FRACTION TO COMMON FRACTION

To convert decimal to common fraction . . .

Multiply the denomminator (bottom) of fraction desired

0.678 (decimal fraction)
64 (denominator desired)
2712
4068
43.392

Result: $\frac{43}{64}$

CONVERSION OF FRACTION TO DECIMAL

To convert fraction to decimal . . .

Divide numerator (top) by denominator (bottom)

Example: 5/8

$$8\overline{)5.000}\quad 0.625$$

48
20
16
40
40
0

5/8 = 0.625

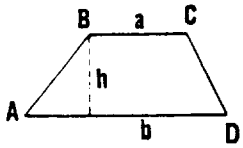
Shop Mathematics
Figure 6 (Sheet 1 of 2)

TRAPEZOID

(a parallel to b)

$$\text{AREA} = \frac{a + b}{2} h$$

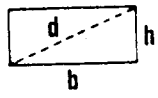
h is perpendicular to a and b



RECTANGLE

AREA = bh

DIAGONAL $d = \sqrt{b^2 + h^2}$



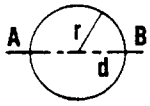
CIRCLE

CIRCUMFERENCE = πd = 2π

AREA = πr^2 = $\frac{\pi}{4} d^2$ = $0.7854 d^2$

$\left(\pi = \frac{\text{circumference}}{\text{diameter}} \right)$

$\pi = 3.1416$

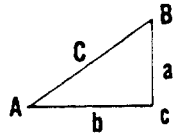


RIGHT TRIANGLE

$$\text{AREA} = \frac{ba}{2}$$

HYPOTENUSE = c = $\sqrt{a^2 + b^2}$

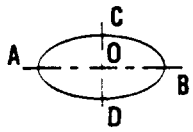
A° + B° + C° = 180 degrees



ELLIPSE

AREA = π (OA) x (OC)

= $\frac{\pi}{4}$ (AB) x (CD)

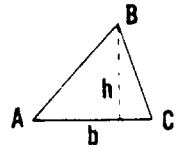


ANY TRIANGLE

$$\text{AREA} = \frac{bh}{2}$$

(h is perpendicular to b)

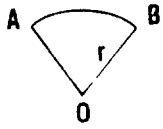
A° + B° + C° = 180 degrees



SECTOR

$$\text{AREA} = \frac{r(\text{arcAB})}{2}$$

$$= \frac{\pi r^2 (\text{angleAOB})}{360 \text{ degrees}}$$



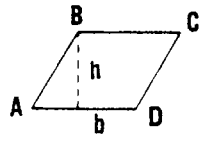
PARALLELOGRAM

(opposite sides parallel)

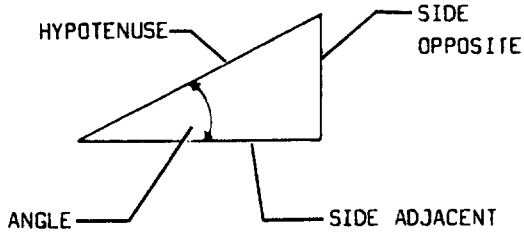
AREA = bh

(h is perpendicular to b)

A° + B° + C° = 360 degrees



FUNCTIONS OF ANGLES



$$\text{SINE} = \frac{\text{Side Opposite}}{\text{Hypotenuse}}$$

$$\text{TANGENT} = \frac{\text{Side Opposite}}{\text{Side Adjacent}}$$

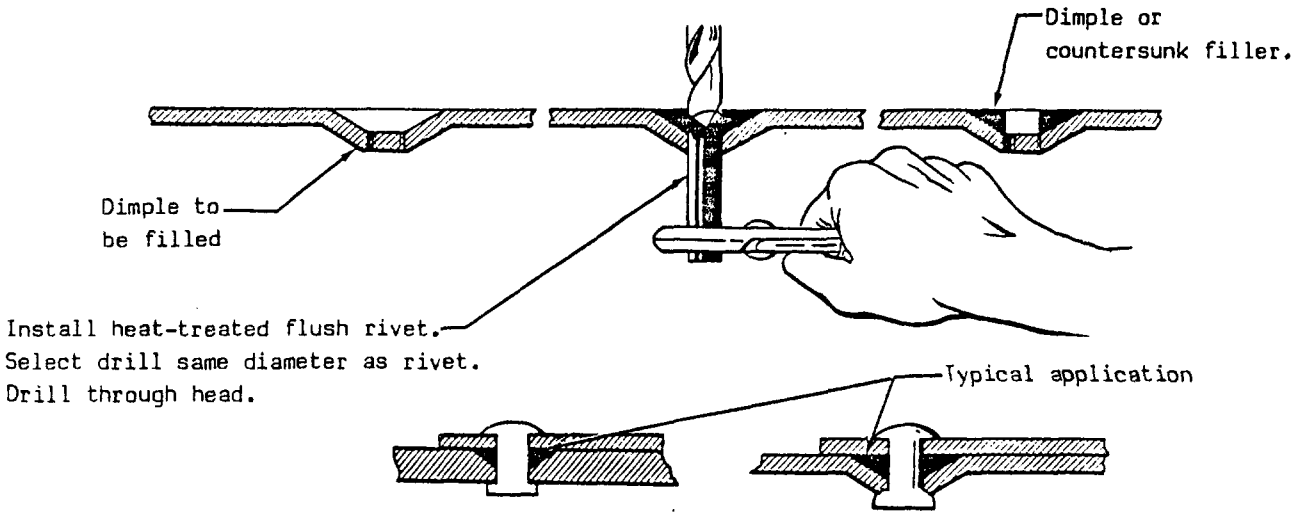
$$\text{SECANT} = \frac{\text{Hypotenuse}}{\text{Side Adjacent}}$$

$$\text{COSINE} = \frac{\text{Side Adjacent}}{\text{Hypotenuse}}$$

$$\text{COTANGENT} = \frac{\text{Side Adjacent}}{\text{Side Opposite}}$$

$$\text{COSECANT} = \frac{\text{Hypotenuse}}{\text{Side Opposite}}$$

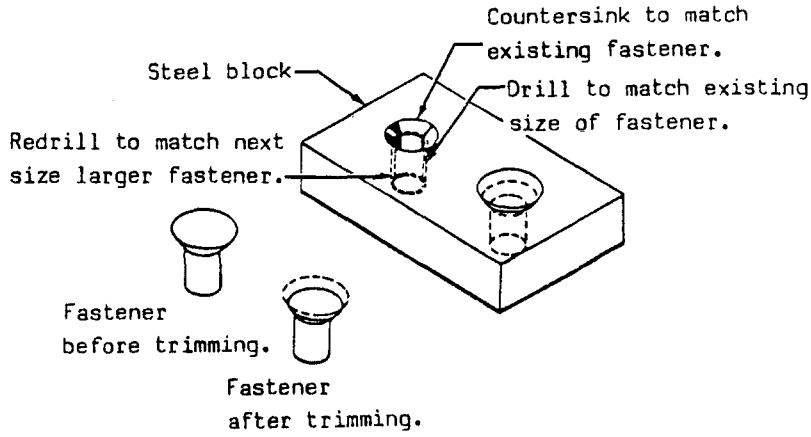
Shop Mathematics
Figure 6 (Sheet 2 of 2)



Filling Dimpled and Countersunk Holes

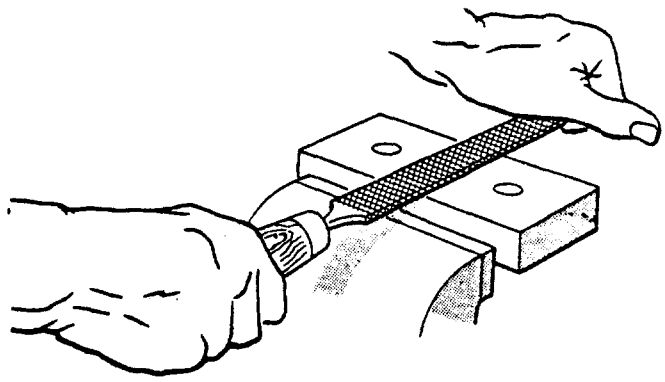
In case where a dimpled or countersunk hole has become enlarged, and it is not possible to redimple or countersink for the next size larger fastener, the following method may be used to trim the next size larger fastener head to match the existing dimples or countersinks.

1. Drill a hole in a steel block the same size as the existing fastener.
2. Countersink the drilled hole so that the existing size fastener head is flush with the surface of the steel block.
3. Redrill hole to next size larger fastener diameter.
4. Place the fastener to be used in the countersunk hole in the steel block, and file or grind off head flush with the surface of the block.
5. Install the fastener to be used in re-drilled holes. After installation, coat head of fastener with epoxy primer, and paint to match surrounding area.



Note

This method to be used only for the next larger fastener.

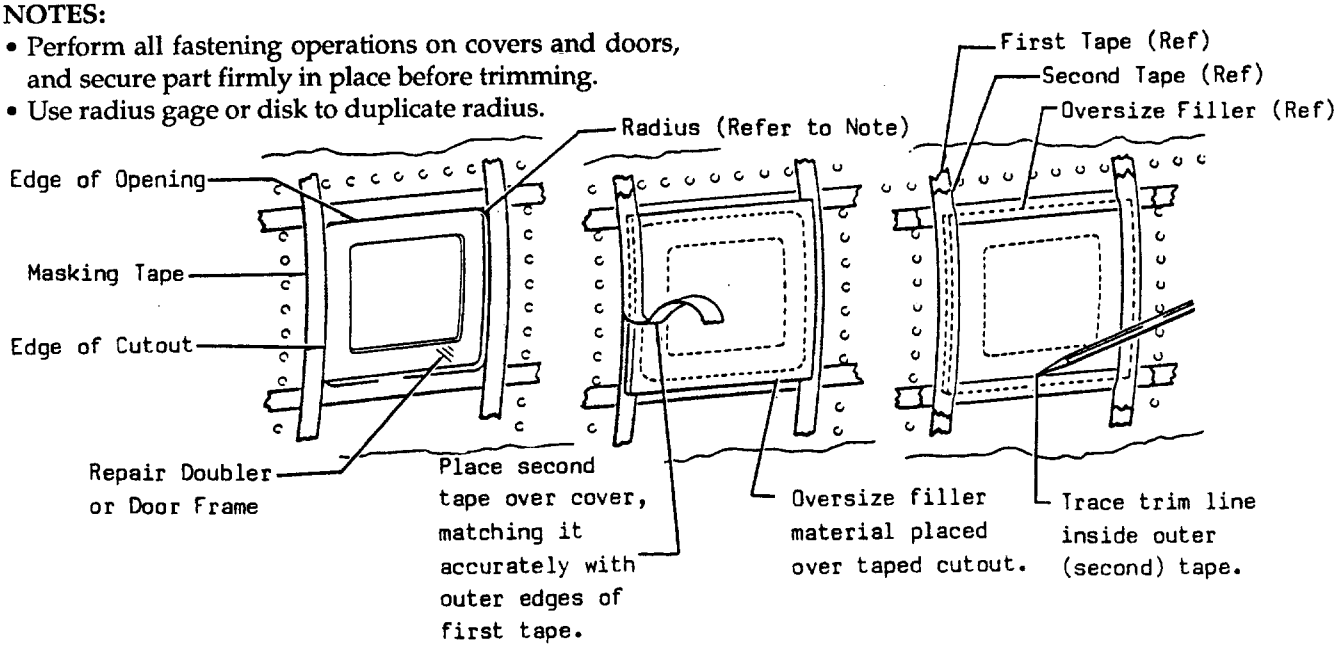


Trimming Fastener Heads

Trimming Fastener Heads and Filling Countersunk Holes
Figure 7

NOTES:

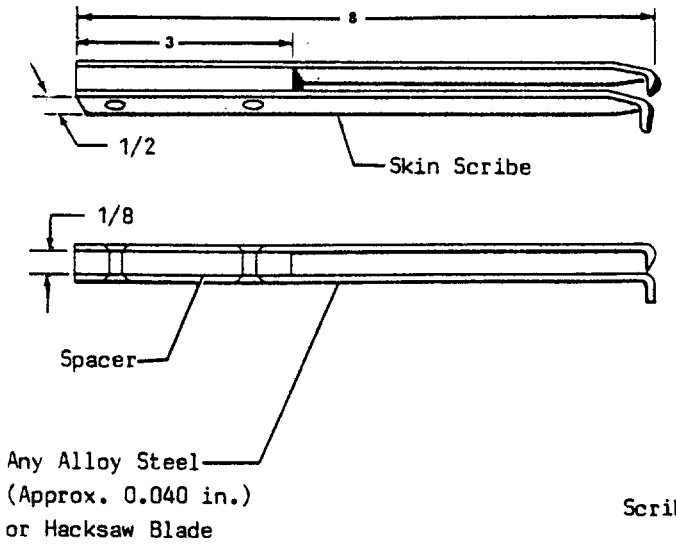
- Perform all fastening operations on covers and doors, and secure part firmly in place before trimming.
- Use radius gage or disk to duplicate radius.

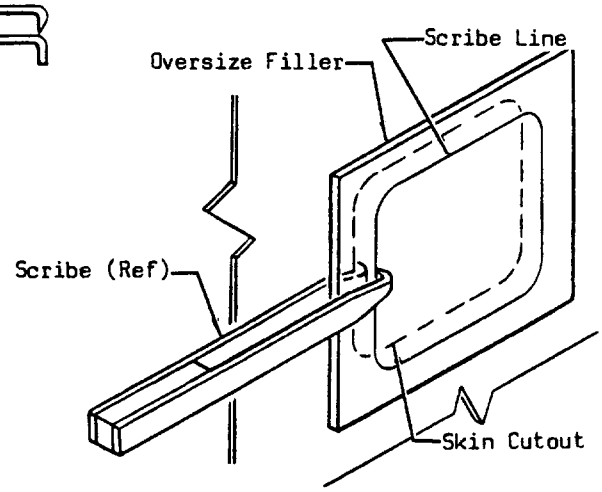


WITH MASKING TAPE

NOTES:

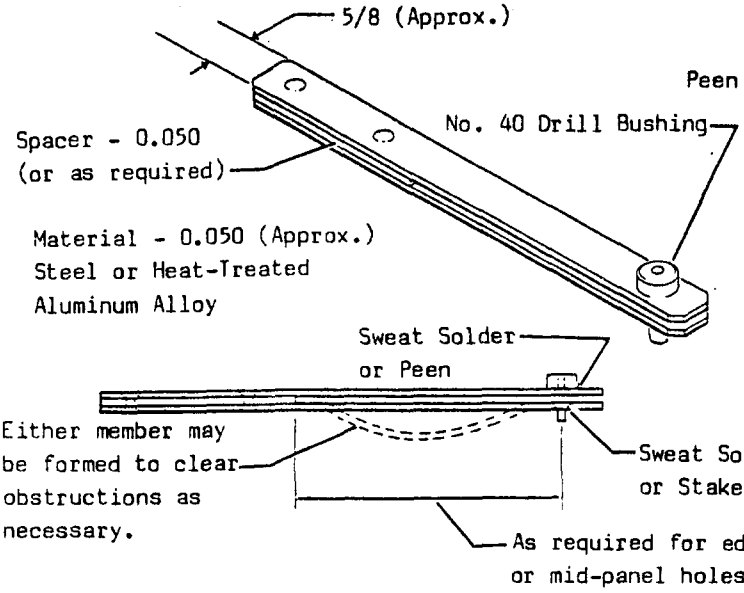
- Trim out damaged area. Cut filler oversize. Place filler over cutout, and insert skin scribe. Hold filler firmly in place, and slide scribe around cutout.
- This trim marking method is not recommended for fitting covers and doors.

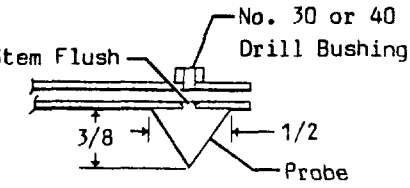




WITH SKIN SCRIBE

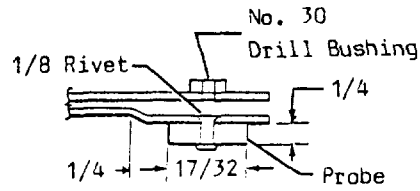
Locating Skin Trim Lines
Figure 8





SCREW LOCATOR

This variation of the hole finder may be used for locating larger holes of various sizes, such as screw holes in undrilled structural doors and covers.



CAMLOC STUD LOCATOR

This variation of the hole finder may be used for locating Camloc studs (4002 series) in undrilled covers and doors.

When frequent fitting of blank covers and doors is expected, a set of locating tools similar to the Camloc stud locator shown in figure 10 is recommended.

LOCATING BLIND HOLES WITH HOLE FINDERS

NOTE: The shapes of the hole finders shown are only examples. Other configurations will be required for accomplishing many jobs. The main points to keep in mind when making a hole finder are (1) the probe must fit snugly in the hole, and (2) the drill bushing or transfer punch hole must be accurately centered over the probe. To accomplish the latter, the assembly should be line-drilled.

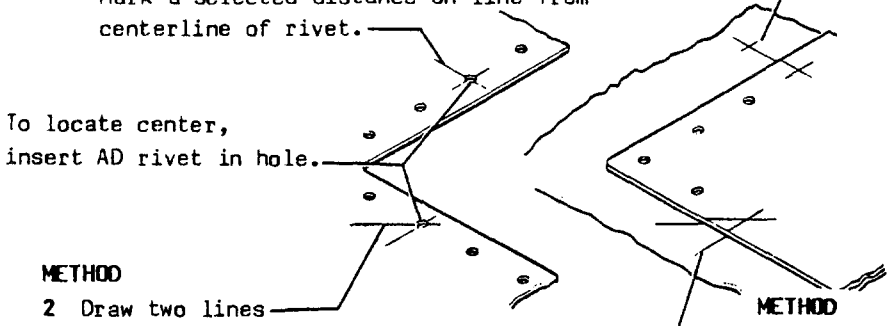
METHOD

1 Draw line through center of rivet. Mark a selected distance on line from centerline of rivet.

To locate center, insert AD rivet in hole.

METHOD

2 Draw two lines intersecting at center of rivet.



METHOD

1 With repair sheet in place, align scale along uncovered portion of line; then project line onto repair sheet. Carefully mark chosen distance. Center-punch and drill hole.

METHOD

2 Install repair sheet. Accurately align scale along uncovered portion of lines and project lines onto repair sheet. Center-punch at intersection, and drill pilot hole.

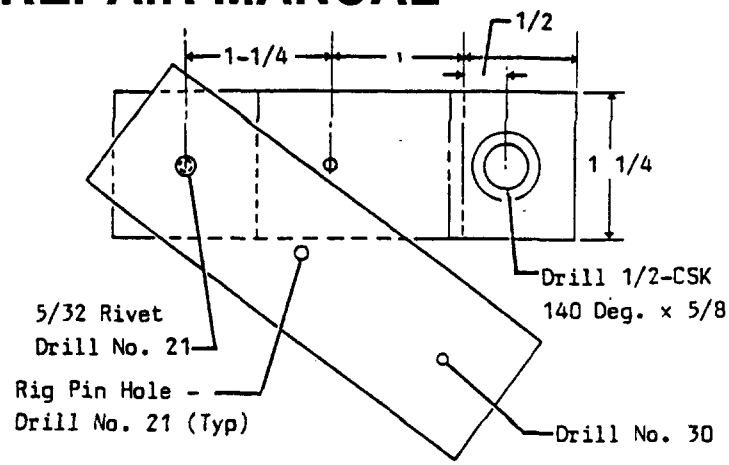
LOCATING BLIND HOLES WITH A SCALE - TWO METHODS

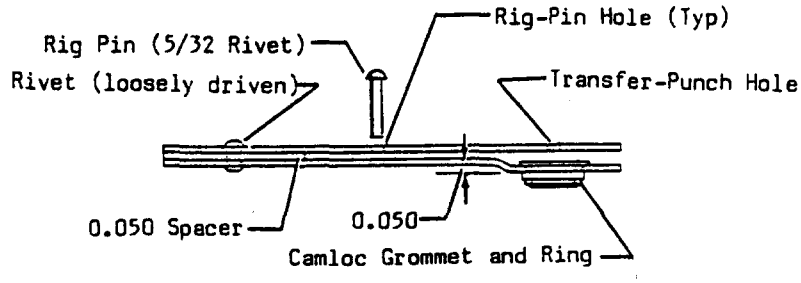
Locating Blind Holes
Figure 9

NOTE:
This type of Camloc stud locator is recommended when regular replacement of doors and covers is expected. A locator tool can be installed in each Camloc receptacle under the door or cover being fitted.

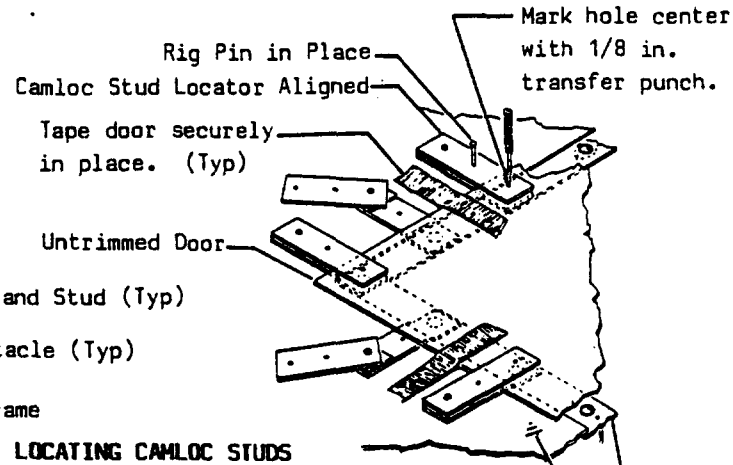
FABRICATION

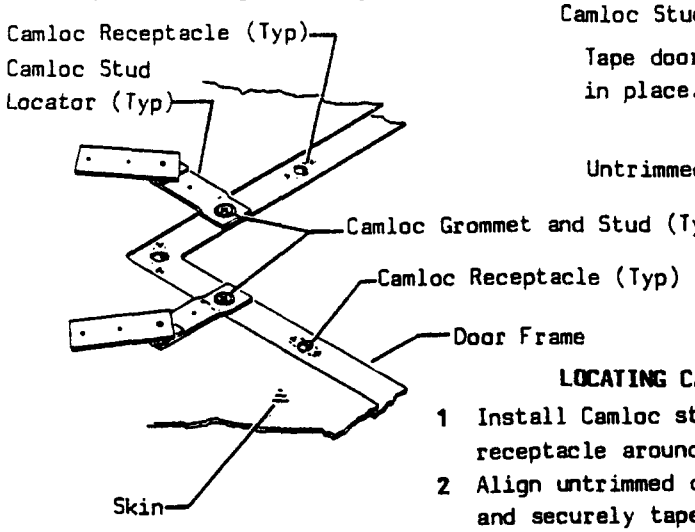
1 Fabricate all parts from 0.050-inch 2024-T4 or 7075-T6 clad material.
2 Cut sheet-metal strips and spacers.
3 Joggle lower (collar-retaining) strip.
4 Align and clamp strips and 0.050-inch spacer in drill vise, and insert a 0.100-inch spacer between strips at joggled end.
5 Through all parts, drill a No. 21 rivet hole, a No. 21 rig-pin hole, and a No. 30 transfer-punch hole.
6 Remove upper strip and spacers from vise. Reclamp lower strip; drill and countersink 1/2-inch Camloc collar hole.
7 Install Camloc collar.
8 Assemble parts, and rivet them. To ensure alignment, rig pin should be in place during riveting operation.





CAMLOC STUD LOCATOR





LOCATING CAMLOC STUDS

1 Install Camloc stud locator in each receptacle around opening.
2 Align untrimmed door over opening, and securely tape it in place.
3 Align locator, install rig pin, and mark center of stud location. Repeat procedure on each locator around opening.

Locating Access Door Fastener Locations
Figure 10

PROTECTIVE TREATMENT OF STRUCTURAL MATERIALS

1. GENERAL
   A. Any repair process which breaks the surface of the original structure requires a protective treatment. The treatment acts as a paint base and corrosion protection when applied prior to the installation of repair parts.
   B. Structural components whose surfaces have not been damaged beyond the limits of allowable damage or whose surfaces have been damaged by corrosion must be protective treated. Final aircraft exterior finish is described in the appropriate Learjet Maintenance Manual.

2. FINISH SPECIFICATIONS AND CODE NUMBER (See Figure 1.)
   A. The finish specifications are listed in tabular form using code numbers that are composed of one, two, or three dash numbers as required to finish a part.
      (1) The order of the dash numbers specifies the sequence of application.
      (2) Finish code numbers also are listed in each table.
   B. Finish Specifications

	ALUMINUM	NON-CORROSION-RESISTANT STEEL	CORROSION-RESISTANT STEEL	FIBERGLASS
Wings & Tip Tanks Exterior of skins except as noted	F4 (1)	–	–	–
Interior of skins except as noted	F4-4 (6)	–	–	–
Exterior surface of upper and lower skin between fuselage fairings	F4-6	–	–	–
Exterior surface of lower skin under leading edge fairing between spars No. 1 and No. 2	F4-6	–	–	–
Exterior surface of doublers	F4-6	–	–	–
Interior surface of dry bay between extension and tip tank	F4-6	–	–	–
Tip tank casting	F4-4	–	–	–

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Finish Specifications Table
Figure 1 (Sheet 1)

B. Finish Specifications (cont.)

	ALUMINUM	NON-CORROSION-RESISTANT STEEL	CORROSION-RESISTANT STEEL	FIBERGLASS
Area between spars 7 and 8	F4-6	–	–	–
Wing Spar No. 8	F4-4	–	–	–
Parts				
In fuel area	F4-4	F8-4	–	–
In non-fuel area	F4-6			
Attach fittings	F4-6	–	–	–
Plumbing (3)				
In fuel area	F4-4 Ext & F4 Int.	–	–	–
In non-fuel area	F4-6	–	–	–
Throughout Aircraft	–	–	F17, F17-6, or F20	–
Main Gear Wheel Well	F4-4 (4)	–	–	–
Battery Area	F4-4	F8-4 (8)	–	–
Structure Not Visible	F4-6	F8-6	–	–
Horizontal Stabilizer	F4-6	–	–	–
Tubing in Structure	(2)	(2)	–	–
Open	F4-6 Int. & Ext.	F1-2 Int. & F8-6 Ext.	–	–
Closed	F1 Int. & F4-6 Ext.	F15 Int. & F8-6 Ext.	–	–
Fuselage Fuel Cell	F4-6	–	–	–
Engine Nacelle	F4-6 Int.	F8-6 Int.	–	–

Finish Specifications Table
Figure 1 (Sheet 2)

B. Finish Specifications (cont.)

	ALUMINUM	NON-CORROSION-RESISTANT STEEL	CORROSION-RESISTANT STEEL	FIBERGLASS
Landing Gear Doors				
Skin	F1 Ext. & F14-6 Int.	F0-0-7	–	–
Pan	F4-6 Ext. & Int.	F8-6	–	–
Inside Assembly	F0-0-7	F8-6	–	–
Tailcone Access Door				
Skin	F4 Ext. & F4-6 Int.	–	–	–
Pan	F4-6	–	–	–
Inside Assembly	F0-0-7	–	–	–
Other Hinged Access Doors	F4-6	–	–	–
	F0-0-7	–	–	–
Exterior Skins	F4-6 Int. & F4 Ext.	–	–	–
Covered by attach angles fairings, etc.	F4-1 (5)	–	–	–
Fuselage Area				
Over wing, under floors, between frames 15 and 22	F4-6 (7)	F8-6 (9)	–	–

Finish Specifications Table
Figure 1 (Sheet 3)

NOTES:

(1) Add aircraft exterior finish per the appropriate Learjet Maintenance Manual.
(2) No interior finish is required on tubing closed by welding .
(3) Except on plumbing lines that are beaded on the end, omit primer from exterior surfaces of plumbing lines for a distance of 1 inch from end. Prime beaded lines end to end.
  (a) Omit primer from connecting surfaces of welded bosses.
  (b) Where possible, protect to avoid removing anodized finish of fittings.
  (c) Omit primer from interior surfaces of oxygen lines and fire extinguisher lines.
  (d) Omit primer from plumbing lines less than 6 inches in length, unless they are exposed and receive a top coat.
  (e) Omit primer from exterior surfaces of 1100-0 and 3003-0 aluminum tubing. Chemically clean interior and exterior.
(4) Finish major structural parts to F4-4. Brackets, plumbing, and other easily replaced parts may be finished to F4-6.
(5) Mask off, clean, and prime surface areas of skin that are to be covered by removable attach angles or removable fairings that are not fay sealed in place.
(6) Finish areas for lightning strike protection to F1.
(7) As an option, apply Pro-Seal 890 (MIL-S-8802) to fasteners that may not need to be corrosion protected by only using epoxy primer.
(8) Major structural parts installed in the battery area shall be finished to F8-4. After installation, all rivet heads and any damaged areas shall be touched up with epoxy primer.
(9) After installation, all bolt heads and nuts and any damaged areas shall be touched up with epoxy primer.

C. Finish Code Number

DASH NUMBERS			DESCRIPTION
1st	2nd	3rd	
F0			No finish required (Detail Parts) or this part of finish given before (Assemblies).
F1			Chemically clean.
F2			(a) F1, (b) Grit blast
F3			(a) F1, (b) Anodize (Chromic Acid)
F4			(a) F1, (b) Chemical Film – Colored Chemical Film
F5			(a) F1, (b) Chemical Film – Clear Chemical Film (Low Electrical Resistance)
F6			Apply Sanding Surfacer
F7			(a) F1, (b) Dichromate Treatment
F8			(a) F1, (b) Cadmium Plate 0.0003 to 0.0005
F9			(a) F1, (b) Cadmium Plate 0.0002 to 0.0003
F10			(a) F1, (b) Hard Chromium Plate
F11			(a) F1, (b) Decorative Chromium Plate per QQ-C-320 Class 1, Type 1
F12			(a) F1, (b) Apply Manganese Phosphate Coating
F13			(a) F1, (b) Apply Zinc Phosphate Coating
F14			(a) Solvent Clean, (b) Apply Pretreatment Primer
F15			(a) F1, (b) Apply corrosion preventive to interior surface of closed end steel assemblies.
F16			Apply Hard Anodize per MIL-A-8625, Type III
F17			(a) F1, (b) Pickle and Passivate (300 Series Stainless Steels.)
F18			Natural Satin Finish (Stainless Steel)
F19			Natural Satin Finish (Aluminum Alloys)
F20			(a) F1, Passivate Only
F21			Non-Directional Satin Finish (Stainless Steel)
F22			Non-Directional Satin Finish (Aluminum Alloys)

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Finish Code Numbers
Figure 2 (Sheet 1)

C. Finish Code Number (cont.)

DASH NUMBERS			DESCRIPTION	
1st	2nd	3rd		
F23			Chemical Treatment of Lead	
F24			Chemical Cleaning and Etching of Aluminum Parts for Bonding	
F25			(a) F1, (b) Zinc Plate 0.0003 to 0.0005	
F26			(a) F1, (b) Zinc Plate 0.0002 to 0.0003	
F27			Pickle only. (300 Series Stainless)	
F28			Pickle only. (Low Alloy Steel)	
F29			(a) F1, (b) Electropolish (Corrosion Resistant Steels)	
F30			(a) F1, (B) Zinc-Nickel Plate 0.0003 to 0.0005	
F31			(a) F1, (B) Zinc-Nickel Plate 0.0002 to 0.0004	
F32			(a) F1, (B) Applly Non-Chromic Acid Anodize Per MIL-A-8625, Type IC	
	-0		This part of finish previously indicated.	
	-1		(Not Used)	
	-2		(Not Used)	
	-3		(Not Used)	
	-4		Epoxy Fuel Resistant and Corrosion Protection Finish	
	-5		Apply Solid Film Lubricant	
	-6		Epoxy Primer	
	-7		Corrosion Inhibiting Metal Bond Primer	
	-8		Epoxy Primer (Light Green)	
	-10		No additional finish	
		-1	Flat Black Topcoat (Urethane)	(Color No. 37038)
		-2	Flat White Topcoat (Urethane)	(Color No. 37875)
		-3	Flat Red Topcoat (Urethane)	(Color No. 31136)

Finish Code Numbers
Figure 2 (Sheet 2)

C. Finish Code Number (cont.)

DASH NUMBERS			DESCRIPTION	
1st	2nd	3rd		
		-4	Gloss Black Topcoat (Urethane)	(Color No. 17038)
		-5	Flat Black Epoxy Enamel Topcoat	(Color No. 37038)
		-6	Gloss Green Topcoat (Urethane) (Identification of Prototype Parts)	(Color No. 14110)
		-7	Gloss Aluminum Topcoat (Urethane)	(Color No. 17178)
		-8	Flat Grey Epoxy Enamel Topcoat	(Color No. 36118)
		-9	Gloss Omaha Orange Topcoat (Urethane) (Identification of Slave Parts)	(Color No. 12473)
		-10	No additional finish	
		-11	Gloss White Topcoat (Urethane)	(Color No. 17875)
		-12	Gloss Red Topcoat (Urethane)	(Color No. 11136)
		-13	Gloss Yellow Topcoat (Urethane)	(Color No. 13655)
		-14	Gloss Blue Topcoat (Urethane)	(Color No. 15180)

Finish Code Numbers
Figure 2 (Sheet 3)

3. VAPOR DEGREASING
   A. Materials: Degreaser
      (1) 1,1,1 trichloroethane (methyl chloroform) inhibited, vapor degreasing (MIL-T-81533).
   B. Procedure
      (1) Rack parts so condensed solvent can drain freely from surfaces.

      NOTE: Parts shall be dry when introduced into degreaser to avoid water contamination.

      (2) Parts shall not be introduced into degreaser unless the vapor level is up to the condensing coils. Parts shall be left in vapors until clean or until there is no longer any condensation on the surfaces.
      (3) Parts may be subjected to some scrubbing action or sprayed with cold solvent to aid in dislodging heavy films.
      (4) Parts which are not clean shall be recycled. Cooling the parts prior to the second cycle increases the cleaning efficiency.
      (5) Parts which require no further cleaning prior to painting shall not be handled with bare hands.

4. SOLVENT CLEANING
   A. Use this procedure to clean the following:
      (1) Parts covered with significant quantities of oil or grease.
      (2) Parts to receive brush chemical film treatment.
      (3) Prior to application of top coat or touch-up, primed parts which have been sanded.
      (4) Prior to application of wash primer, aluminum honeycomb parts, spot welded assemblies, anodized parts, and predominantly aluminum assemblies which include one or more steel parts.
   B. Cleaning Procedure
      (1) Wipe off excess oil and grease.
      (2) Apply methyl ethyl ketone (MEK) (TT-M-261) from safety cans with clean, oil-free, absorbent cloths.
      (3) Scrub surface with a clean cloth, if necessary, to loosen the soil.
      (4) Repeat applications of clean solvent as necessary to remove all soil.
      (5) Wipe off solvent with clean, absorbent cloths. Do not allow solvent to dry on surface, as a residue will remain.
      (6) Blow assembled faying surfaces free of solvent with oil-free air.
      (7) Solvent cleaned surfaces shall be dry and free of all visible soils. Iridescent surfaces are evidence of improper cleaning and shall be cleaned again.

5. ABRASIVE CLEANING OF METALS
   A. General Requirements
      (1) Oily or greasy parts shall be vapor degreased per paragraph 3, Vapor Degreasing, prior to abrasive cleaning.
      (2) Parts shall be abrasively cleaned only immediately preceding final finishing to prevent corrosion.
      (3) Significant surface defects shall not be removed by abrasive cleaning.
      (4) Where a significant loss of metal cannot be tolerated and/or a smooth finish is required, a size 180 grit or finer abrasive shall be used. When heavy layers of dirt, scale, or oxides are to be removed and the surface is to receive subsequent finishing or processing, a metallic brush or size 150 grit or coarser abrasive may be used for cleaning.
      (5) All abrasives may be used with either hand or power tools.
      (6) Parts must be within their original permissible tolerances after abrasive cleaning.
      (7) Compressed air used for blowing off dust, drying parts, or for abrasive blast cleaning shall be essentially free from moisture, oil, and other foreign solid particles.
      (8) All loose particles shall be removed from parts by a jet of air immediately upon completion of abrasive cleaning. Care shall be exercised that surfaces adjoining the surface to be abrasively cleaned are not impaired by any phase of the cleaning process.
   B. Abrasive Cleaning with Papers, Cloths, Wools, and Brushes
      (1) Abrasive cleaning of small areas shall be accomplished by using one of the applicable abrasives indicated in Figure 1.
      (2) During the life of an abrasive material, the abrasive material shall be used for the cleaning of one class of materials only. The following classes of metals shall be used:
         (a) Carbon and low alloy steel.
         (b) Corrosion resistant steels.
         (c) Aluminum and aluminum alloys.
         (d) Copper and copper alloys.

6. CHEMICAL FILM TREATMENT OF ALUMINUM AND ALUMINUM ALLOYS

NOTE: Equivalent processes meeting the requirements of MIL-C-5541, Class 1A, may be used.

A. Materials
   (1) Turcoat Accelagold manufactured by Turco Products, Wilmington, California: 0.5 ounce per gallon of water. Maintain aging solution in the range of 0.5 to 2.0 ounce Turcoat Accelagold per gallon of water with pH of 1.7 to 1.9. When the pH cannot be maintained in the specified range with the addition of required Turcoat Accelagold:
      (a) Raise the pH by adding ammonium hydroxide.
      (b) Lower the pH by adding nitric acid.

B. Procedure

NOTE: Do not apply chemical film treatment to parts or assemblies having joints or crevices or any other type of configuration that will entrap solution unless those areas are positively masked off.

(1) Vapor degrease all parts covered with significant quantities of oil or grease per paragraph 3, Vapor Degreasing, or solvent clean per paragraph 4, Solvent Cleaning.
(2) Immerse parts in solution per step A. for 0.5 to 6.0 minutes at 40° to 100°F (4.4° to 37°C).
(3) Rinse parts in room temperature water (40° to 100°F [4.4° to 37°C]) and then in warm water (100° to 140°F [37° to 60°C]).
(4) Dry parts in still or circulating air in the temperature range of 60° to 140°F (15° to 60°C).

CAUTION: DO NOT WIPE PARTS FOR ANY REASON UNTIL THEY HAVE DRIED 24 HOURS.

(5) Apply required paint to treated surfaces within 12 hours after drying.

CAUTION: HANDLE TREATED PARTS SO AS TO AVOID FINGERPRINTING PRIOR TO PAINTING.

(6) Scratched or otherwise impaired small areas may be touched up as follows:
   (a) Strip chemical film from area with a Scotch-Brite pad, or equivalent.
   (b) Swab or brush small quantities of Turcoat Accelagold solution over the stripped area to produce a satisfactory chemical film.
   (c) Apply the solution over the chemical film, along the periphery of the stripped area, only as far as necessary to produce a continuous film.
   (d) Using a sponge or brush rinse treated area thoroughly with water.
   (e) Dry the treated area in still or circulating air in the temperature range of 60° to 140°F (15° to 60°C).

ABRASIVES	MATERIALS TO BE CLEANED				
	Carbon & Low Alloy Steel	Corrosion Resistant Steel	Aluminum & Its Alloys	Magnesium & Its Alloys	Copper & Its Alloys
Sandpaper	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Emery Paper or Cloth	Recommended	Acceptable	Acceptable	Acceptable	Acceptable
Aluminum Oxide Paper or Cloth	Acceptable	Recommended	Recommended	Recommended	Recommended
Steel Wool	Acceptable	Prohibited	Prohibited	Prohibited	Prohibited
Aluminum Wool	Prohibited	Prohibited	Acceptable	Prohibited	Prohibited
Stainless Steel Wool	Acceptable	Recommended	Acceptable	Prohibited	Acceptable
Carbon Steel Brush	Recommended	Prohibited	Prohibited	Prohibited	Prohibited
Stainless Steel Brush	Acceptable	Recommended	Acceptable	Acceptable	Acceptable
Monel Brush	Acceptable	Acceptable	Recommended	Recommended	Recommended

Abrasives and Their Usage
Figure 1

TYPE OF GRIT	MATERIALS TO BE CLEANED			
	Carbon & Low Alloy Steel	Corrosion Resistant Steel	Aluminum & ** Aluminum Alloys	Magnesium & ** Magnesium Alloy
Steel	Recommended	Prohibited	Prohibited	Prohibited
Silica	Acceptable	Acceptable	Acceptable	Acceptable
Garnet	Acceptable	Acceptable	Acceptable	Acceptable
Aluminum Oxide	Acceptable	Recommended	Recommended	Recommended

**Blast cleaning permitted only on aluminum or magnesium alloy castings.

Blast Cleaning Grits
Figure 2

7. APPLYING SANDING SURFACER TO LAMINATED FIBERGLASS PARTS

A. Materials
   (1) Andrew Brown Co. system:
      (a) P-900 Skyspar Surfacer
      (b) C-903 Converter
      (c) T-262 Thinner
   (2) Bostik system:
      (a) No. 464-3-1 Cat-A-Lac Hi-Build Primer Surfacer
      (b) CA-142 Catalyst
      (c) TL-52 Thinner or methyl ethyl ketone (MEK)
   (3) No. 49X2 Neutral Patching Paste, Presto Chemicals Inc., Sun Valley, CA
   (4) Toluene (TT-T-548)
   (5) 320 grit abrasive paper (wet or dry)

B. Surface Preparation
   (1) With a clean cloth dampened with toluene, thoroughly clean the laminated fiberglass surface.
   (2) Scuff sand the surface to produce a slightly roughened surface.
   (3) Clean sanding residue from the area with a clean cloth dampened with toluene.
   (4) Dry surface thoroughly.
   (5) Mask off areas not intended to receive surfacer.
   (6) Mix patching paste per manufacturer's instructions.
   (7) Apply patching paste to surface with a plastic scraper to fill pin holes, dents, abrasions, scratches. Squeegee away excess patching paste, leaving depressions filled flush with the surface.
   (8) Allow patching paste to dry thoroughly.
   (9) Sand patching paste smooth with 320 grit abrasive paper.
   (10) Thoroughly clean the filled surface with a clean cloth dampened with acetone to remove sanding residue.
   (11) Dry surface thoroughly.

C. Application of Sanding Surfacer
   (1) Andrew Brown Co. System
      (a) Mix four parts surfacer with one part converter. Stir thoroughly and allow mixture to sit one hour before using.
      (b) Thin as required with thinner for spraying.
      (c) Spray a crosscoat of sanding surfacer on the prepared laminated fiberglass surface.

         NOTE: The pot life of the mixed sanding surfacer is approximately 24 hours. Catalyze only the amount of material that can be used within this time.

   (2) Bostik System
      (a) Mix three parts surfacer with one part catalyst. Stir thoroughly.
      (b) Thin catalyzed material to a viscosity of 25 seconds (No. 2 Zahn cup) using Bostik thinner or MEK.
      (c) Strain thinned material through suitable paint strainer prior to spraying.
      (d) Spray a crosscoat of sanding surfacer on the prepared laminated fiberglass surface.

         NOTE: The pot life of the mixed sanding surfacer is approximately eight hours. Catalyze only the amount of material that can be used within this time.

(3) Cure Andrew Brown Co. surfacer at room temperature (60°F [15°C] or above) for 12 hours before sanding. Cure Bostik surfacer at room temperature for two to six hours before sanding; the cure can be accelerated by heating to 100° to 150°F (37° to 65°C) for two to three hours.
(4) Wet sand the cured sanding surfacer in the general direction of air flow with 320 grit abrasive paper.
(5) All surface imperfections, blemishes, and the weave of the fabric must be completely obscured or additional sanding surfacer must be applied to imperfect areas. Hold sanding surfacer thickness to an absolute minimum while meeting the requirements of this step.

8. APPLYING EPOXY PRIMER
A. Precautions
(1) The following precautions shall be adhered to when applying epoxy primer.
(a) Clean and proper equipment shall be used.
(b) The coating material shall be uniform, free of skins, lumps, gelled, or coarse particles.
(c) Suitable ventilation and safety precautions shall be provided in the work area.
(d) The finish area shall be free of dust and severe temperature change which will adversely affect the application and cure of the coating.
(e) Thickness requirements listed for the coating shall be strictly maintained.
(f) Every attempt shall be made to produce a lint free, smooth, good quality finish.
B. Material
(1) Super Koropon Fluid Resistant Primer, Green; Mfg.: Desoto, Inc., Garland, TX
(a) 515X400 Primer Base
(b) 910X350 Curing Agent
(2) Corrosion Resistant Primer, Green; Mfg.: Akzo Coatings, Inc., Orange, CA
(a) 463-12-8 Primer Base
(b) CA-116 Catalyst
(c) TL-52 Reducer (Normal Temperature) (Ambient temperature of 90°F [32.2°C] or lower)
(d) TL-65 Reducer (High Temperature) (Ambient temperature of 90°F [32.2°C] or higher)
C. Surface Preparation
(1) Treat detail aluminum parts with anti-corrosion chemical film.
(2) Touch-up anti-corrosion chemical film on aluminum surfaces.
(3) Treat welded (spot or fusion) assemblies with exposed or unsealed faying surfaces, assemblies with parts that were not chemical filmed, anodized parts over 24 hours old, parts which are inconvenient to chemical film treatment, or parts and assemblies that might trap solution with pretreatment primer.

NOTE: Epoxy primer must be applied within four (4) hours after pretreatment primer application.

D. Application
(1) Thoroughly mix curing solution into primer and allow to stand a minimum of 30 minutes before applying or thinning.
(a) Mixing Green Super Koropon Fluid Resistant Primer by Desoto, Inc.
1) Mix one (1) volume of curing agent into one (1) volume of primer base.
2) Thorough stirring with a paddle is sufficient agitation after mixing base and curing agent.

3) Methyl ethyl ketone (MEK) may be used as a thinner. Thin up to 10% (by volume) for sprayability.

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(b) Mixing Green Corrosion Resistant Primer by Akzo Coatings, Inc.
1) Mix one (1) volume of catalyst into one (1) volume of primer base.
2) Thorough stirring with a paddle is sufficient agitation after mixing base and catalyst.
3) Reducer may be used as a thinner. Thin up to 10% (by volume) for sprayability.

(2) Unused mixed material over eight (8) hours old must be discarded.

(3) All surfaces shall be thoroughly dry before receiving primer.

(4) Apply a spray coat of mixed primer to give a dry film thickness of 0.0006 to 0.0012 inch (0.6 to 1.2 mils).

NOTE:
- Film thickness may be measured by masking and test painting a bare piece of aluminum and measuring the difference in thickness between bare and painted areas with a precision micrometer.
- Adjust spray pattern or primer viscosity to adjust dry film thickness.

(5) Allow primer to air dry a minimum of two (2) hours before applying top coat.

NOTE: Drying time can be reduced by, allowing primer to dry at room temperature for 20 minutes (to prevent flash-off). Then bake at 130° to 150°F for approximately 30 minutes.

(6) Primer Appearance
a) The cured primer shall be continuous and have a smooth and uniform appearance, free from soils and contamination, sags, runs, blisters, overspray, and orange peel when visually inspected without magnification.

NOTE: When applying Akzo Coatings Corrosion Resistant Primer at ambient temperatures of 90°F (32.2°C) or higher, excess surface roughness caused by too rapid drying of primer may be eliminated by using high temperature reducer TL-65.

b) Slight roughness, silking, beads, runs, sags, and orange peel are not a cause for rejection on surfaces where appearance is not a factor. Thickness in local area of such beads, runs, or sags shall not exceed the maximum allowable film thickness by more than 0.001 inch (1 mil).

9. APPLYING SOLID DRY FILM LUBRICANT

A. Materials
(1) Everlube 620-C manufactured by Everlube Corp., North Hollywood, CA
(2) Ethyl alcohol
(3) Tuluol (TT-T-548)
(4) Methyl ethyl ketone (MEK)

B. Surface Preparation
(1) Aluminum and aluminum alloys: apply chemical film treatment per paragraph 6, Chemical Film Treatment.
(2) Ferrous alloys:
(a) Stainless steels: vapor degrease per paragraph 3, Vapor Degreasing, or abrasive clean per paragraph 6, Chemical Film Treatment.

C. Application
(1) Apply dry film lubricant to dry surface immediately following surface preparation per step B. Wear clean, cotton gloves while handling parts.
(2) Dry film lubricant can be applied by spraying, brushing, or dipping. Prepare Everlube 620 for spraying by thinning one part 620 with three parts thinner. Prepare Everlube 620 for brushing or dipping by thinning one part 620 with two parts thinner. Prepare thinner by mixing 50 percent ethyl alcohol with 50 percent toluol prior to introducing thinner into Everlube 620.
(3) Apply dry film lubricant to achieve an even film thickness of 0.0002 to 0.0005 inch (mm) that is smooth, free of runs, lumps, blisters, and dirt particles, and is continuous over its entirety. Touching up scratches or areas not having the required thickness is not permissible.

D. Baking
(1) Air dry parts a minimum of 15 minutes prior to baking. Baking is required to make the finished coating insoluble in solvents. Bake aluminum and aluminum alloy parts for one hour at 300°F (149°C). Bake ferrous alloys, stainless steels, and cadmium plated steel one hour at 375°F (190°C).

E. Stripping
(1) Parts which have had the dry film lubricant application and have not been baked can be stripped of the dry film lubricant by immersing the part in MEK and scrubbing with a non-metallic brush.
(2) Parts which have had the dry film lubricant application and have been baked can be abrasively stripped per paragraph 5, Abrasive Cleaning of Metal, and pretreated per step B.

10. APPLYING FUEL RESISTANT AND CORROSION PROTECTION FINISH

A. Materials
(1) Epoxy Fuel Resistant and Corrosion Protection Coating - Bostik-Finch
(a) No. 454-4-1 Base
(b) CA-109 Catalyst
(c) TL-52 Thinner
(2) Polyurethane Fuel Resistant and Corrosion Protection Coating - DeSoto Chemical Coatings, Inc.
(a) 823-707 Coating
(b) 910-702 Catalyst
(c) 020-707 Solvent Reducer
(3) Spray Guns and Accessories
(a) Binks Model 18 with 66SD Air Cap, 66 Fluid Tip, and 65 Needle
66SE Air Cap, 66 Fluid Tip, and 65 Needle
67SA Air Cap, 67A Fluid Tip, and 18 Needle
(b) Binks Model 19 with 66SE Air Cap, 66 Fluid Tip, and 15 Needle
66SD Air Cap, 66 Fluid Tip, and 15 Needle
67SA Air Cap, 67A Fluid Tip, and 18 Needle

B. Surface Preparation
(1) Aluminum alloy surfaces: apply chemical film treatment per paragraph 6, Chemical Film Treatment.

C. Coating Preparation
(1) Epoxy Coating Preparation
(a) Stir base component with a paddle to reincorpoate settled pigment.
(b) Agitate base for at least 10 minutes on a vibrating paint mixer or box the base component six times to ensure a homogeneous solution.

NOTE:
- One "box" is defined as pouring the entire contents of a container into another empty container.
- Properly agitated base component will remain homogeneous for approximately three hours. If the base component is not used immediately after the recommended initial agitation, but is used within three hours, the base component shall be thoroughly stirred with a paddle to reincorpoate any pigment or material that has settled. After three hours settling, stirring is not sufficient agitation; repeat the recommended initial agitation.

(c) Shake catalyst vigorously by hand to achieve sufficient agitation.

CAUTION: DO NOT USE ANY TYPE OF CONTAINER WHICH IS LINED WITH AN ORGANIC COATING FOR MEASURING BASE, CATALYST, OR THINNER. USE OF PAPER CONTAINERS IS STRICTLY PROHIBITED.

(d) Mix three volumes of base and one volume of catalyst, thoroughly stirring with a paddle.
(e) If thinning is absolutely necessary, thin as required up to one part thinner to one part mixed coating.
(f) After mixing and thinning, age mixture a minimum of 45 minutes before use.
(g) Discard unused mixed material over eight hours old.

(2) Polyurethane Coating Preparation
(a) Agitate base for at least 10 minutes on a vibrating paint mixer.

NOTE: Properly agitated coating will remain homogeneous for approximately three hours. If the coating is not used immediately after the recommended initial agitation, but is used within three hours, the coating shall be thoroughly stirred with a paddle to reincorpoate any pigment or material that has settled. After three hours settling, stirring is not sufficient agitation; repeat the recommended initial agitation.

(b) Shake catalyst vigorously by hand to achieve sufficient agitation.

CAUTION: DO NOT USE ANY TYPE OF CONTAINER WHICH IS LINED WITH AN ORGANIC COATING FOR MEASURING COATING, CATALYST, OR SOLVENT REDUCER. USE OF PAPER CONTAINERS IS STRICTLY PROHIBITED.

(c) Add one volume of catalyst to four volumes of coating, thoroughly stirring with a paddle.
(d) Thin as required up to one part solvent reducer to one part mixed coating.
(e) After mixing and thinning, age mixture a minimum of 30 minutes before use.
(f) Discard unused mixed material over eight hours old.

D. Application
(1) Using the recommended spray gun air cap, fluid tip, and needle, apply coating with air pressure at gun of 30-50 psi (206 to 344 kPa) to achieve a dry film thickness of 0.0008 to 0.0012 inch (mm).

NOTE:
- Ambient temperature shall be 60°F (15°C) or above and relative humidity shall be 85 percent or below when coating is applied.
- All surfaces shall be thoroughly dry before receiving finish coating.
- To ensure that all areas to be coated are free from foreign matter, apply coating as soon as possible after surface treatment operations.

(2) Cure the finish prior to subjecting the part to service. Cure finish a minimum of 24 hours at a temperature above 73°F (22°C) or as follows:
(a) Allow finish to dry a minimum of six minutes at room temperature to allow solvent flash-off. Bake polyurethane finish at 130° to 230°F (54° to 110°C) for approximately 20 minutes.
(b) Allow finish to dry a minimum of six minutes at room temperature to allow solvent flash-off. Bake epoxy primer at approximately 120°F (48°C) for approximately eight hours.
(3) Measure for ultimate cure by rubbing the coating with a gauze pad wet with MEK for 50 double strokes with moderate pressure. No bare metal is to be exposed.

11. PROTECTION FOR DISSIMILAR METAL CONTACT

A. Dissimilar metals are defined as follows:
(1) Group I - Magnesium alloys; aluminum alloys 5052, 5056, 5356, 6061, and 6063; tin.
(2) Group II - Aluminum, aluminum alloys (all), zinc, cadmium tin, stainless steel (active), tin lead (solder), and titanium.
(3) Group III - Zinc, cadmium, steel, lead, tin, stainless steel (active), nickel and its alloys, tin lead (solder), and titanium.
(4) Group IV - Copper and its alloys, nickel and its alloys, chromium, stainless steel (passive), gold, silver, and titanium.

NOTE: Metals classified in the same group are considered similar to one another. Metals classified in different groups are considered dissimilar to one another. The metal referred to is the metal on the surface of the part.

B. Procedure
(1) Dissimilar metal mating parts used in a faying surface application shall receive corrosion protection as follows:
(a) Faying surface mating parts that have been epoxy primed require no further treatment.

NOTE Epoxy primer used for faying surface dissimilar metal protection must be cured (cannot be indented with a fingernail) prior to assembly.

(b) Apply Pro-Seal 890, (MIL-S-8802) using a sufficient quantity of material to provide a continuous uniform extruded bead of sealant all around the exposed edge of the mating joint.

FASTENERS - GENERAL

1. GENERAL
   A. The fasteners used in this aircraft are, for the most part, the conventional fixed and removable types. However, specific instructions concerning fasteners in the repair illustrations should be strictly observed. Unless otherwise noted in this manual, the minimum fastener edge distance is two fastener diameters from the center of the hole to the edge of the material, and minimum spacing is 6 fastener diameters.
   B. Bolts, washers, nuts, and screws shall be installed per 51-40-01.
   C. Conventional rivets and specially installed fasteners shall be installed per 51-40-02.
   D. For fastener substitutions refer to 51-40-03.
   E. For countersinking of rivets and associated hardware refer to 51-40-04.
   F. Fastener Selection - Rivet diameter must normally be between three and five times the thickness of the thinnest material riveted and not greater than 1/4 the width of an attachment flange. In skin and web repairs it is best to match the type and size of fastener with those in use in the general area. Blind fasteners may be used only where repair with solid fasteners is not possible.

THREADED FASTENERS

1. TORQUING THREADED FASTENERS

A. Torquing of bolts is required to provide security of installation and prevent overstressing of components during installation. Bolts, screws, or nuts not having a specific torque requirement shall be tightened in accordance with good aircraft practice to approximate the torque values as specified in Figure 1.

B. When drag torque is referred to, it is defined as the torque required to turn a self-locking nut on the threads of a bolt. Drag torque is added to the required torque value.

C. When shank friction is referred to, it is defined as the torque required to turn a bolt within a snug fitting hole. Shank friction is normally added to the required torque value when it is necessary to torque the fastener from the head end. Measure shank friction using a torque wrench.

D. Wrench torques shown in Figures 1 thru 6 are for clean, non-lubricated parts. Any lubricant accumulations on threads shall be removed by suitable means. Lubricants other than that on the fastener as purchased shall not be added unless specified in specific repair procedures. When threads are greased, decrease torque values by 10 percent. When threads are cadmium plated or lubricated with graphite or molybdenum disulfide, decrease torque values by 15 percent.

E. Bolts and screws which do not have the nut accessible, are installed in nutplates, or have threads not included in Figure 6 normally are not torqued, but shall be drawn down tight. Exceptions to this are bolts and screws used in the fuel system to secure access panels, fuel probes, and fuel pumps. Refer to the appropriate Learjet Maintenance Manual or Service Manual for specific torque values.

F. Impact tools or tools with ratcheting clutches should not be used in any installation requiring a specified torque.

H. Sheet metal screws shall not be torqued, but shall be drawn down tight.

2. INSTALLING THREADED FASTENERS AND WASHERS

A. Install Bolts

(1) Bolts 1/4-inch diameter or less which are drilled for cotter pins shall not be installed using self-locking nuts.

(2) When installing bolts, ensure that the threads are free of foreign material. Do not use anti-seize compounds or lubricants unless specified in the specific instructions.

B. Install Nuts

(1) When installing castellated nuts for use with safety wire or cotter pin, align holes by tightening nut to low torque range and continue to tighten until holes align. If holes cannot be aligned without exceeding the maximum torque value, a washer of different thickness may be used or another washer added.

(2) When installing self-locking nuts, always use the same type nut as removed. Self-locking nuts shall not be substituted for castellated nuts, secured by safety wire or cotter pin. Fiber or nylon self-locking nuts shall not be used in areas subject to high temperature. Check break away torque on used self-locking nuts prior to use.

C. Install Washers (See Figure 7.)

(1) When installing a lockwasher against aluminum alloy, a cadmium-plated flat washer shall be installed between lockwasher and aluminum alloy to prevent damage to the aluminum alloy. On magnesium alloys, use an NAS1252 flat washer under the lockwasher to prevent corrosion between dissimilar metals.

(2) The use of wrong type or number of washers can result in improper preloading of the bolts when torqued.

(3) When bolts are used which have a radius under bolt head, a counter-sunk washer must be used with the countersink next to the radius under the bolt head. Reversing a countersunk washer or installing a standard washer can result in bolt failure.

3. INSPECTING THREADED FASTENERS
   A. Inspect Nuts and Bolts
      (1) Bolts shall extend through the self-locking portion of self-locking nuts. Rounded or chamfered ends shall extend at least full round or chamfer through nut. Flat end bolts shall extend at least 1/32 inch through nuts.
      (2) Drilled hole in bolts for use with castellated nuts shall not extend more than 1/2 diameter of hole above nut.
      (3) When reusing self-locking nuts, ensure that gripping power is sufficient so as not to loosen in service. Nuts which thread onto bolt easily shall be discarded. Gripping power must meet minimum breakaway torque requirements per MIL-N-25027.

4. USING TORQUE WRENCHES (See Figures 1 thru 6.)
   A. The following standard torque wrench practices shall be followed when torquing nuts and bolts.
      (1) Whenever possible, the nut shall be torqued. When it is necessary to torque the fastener from the head end, increase the maximum torque value by an amount equal to the shank friction. The shank friction shall be measured by a torque wrench.
      (2) Calibrate torque wrenches periodically per local regulations to ensure accuracy.
      (3) Take final torque reading while nut is rotating. If highest torque value is reached without rotating the nut, the nut must be backed off and retorqued.
      (4) When torquing requires the use of an adapter, the torque value must be computed using the formula in Figure 6 or the appropriate decimal figure in Figure 3.
      (5) When an adapter and a universal socket extend the wrench length at an angle, the correct torque is obtained by consulting Figure 4 for a torque reading which is multiplied by a factor for the adapter obtained from Figure 3.
      (6) When using a "pre-set" torque wrench, the load shall be applied gradually until the wrench gives its indicating snap. The load must be immediately removed at this time. The snapping of the wrench does not prevent additional torque being applied if more pressure is applied to the handle.

SIZE OF NUT, BOLT, OR SCREW	TORQUE RANGE (Inch-Pounds)	
	TENSION TYPE NUTS TYPICAL EXAMPLES: MS20365 & MS21045 OR MS20365 & AN310	SHEAR TYPE NUTS TYPICAL EXAMPLES: MS20364 & MS21245 OR MS20364 & AN320
8 – 32	12 – 15	7 – 9
10 – 32	20 – 25	12 – 15
1/4 – 28	50 – 70	30 – 40
5/16 – 24	100 – 140	60 – 85
3/8 – 24	160 – 190	95 – 110
7/16 – 20	450 – 500	270 – 300
1/2 – 20	480 – 690	290 – 410
9/16 – 18	800 – 1000	480 – 600
5/8 – 16	1100 – 1300	660 – 780
3/4 – 16	2300 – 2500	1300 – 1500
7/8 – 14	2500 – 3000	1500 – 1800
1 – 14	3700 – 5500	2200 – 3300
1-1/8 – 12	5000 – 7000	3000 – 4200
1-1/4 – 12	9000 – 11000	5400 – 6600

Torque Values
Figure 1

SIZE OF NUT, BOLT, OR	MINIMUM BREAKWAY TORQUE VALUE
8 – 32	1.5 Inch-Pounds
10 – 32	2.0 Inch-Pounds
1/4 – 28	3.5 Inch-Pounds
5/16 – 24	6.5 Inch-Pounds
3/8 – 24	9.5 Inch-Pounds
7/16 – 20	14.0 Inch-Pounds
1/2 – 20	18.0 Inch-Pounds
9/16 – 18	24.0 Inch-Pounds
5/8 – 16	32.0 Inch-Pounds
3/4 – 16	50.0 Inch-Pounds
7/8 – 14	70.0 Inch-Pounds
1 – 14	92.0 Inch-Pounds

NOTE: Replace nuts which fall below values shown for unscrewing nut from bolts.

LES 1036L

Torque Values for Self-Locking Nuts
Figure 2

APPROX. LENGTH OF TORQUE ARM	ADAPTER LENGTHS						
	1" THRU 1-5/8"	OVER 1-5/8" THRU 2-3/8"	OVER 2-3/8" THRU 3-1/8"	OVER 3-1/8" THRU 3-7/8"	OVER 3-7/8" THRU 4-5/8"	OVER 4-5/8" THRU 5-3/8"	OVER 5-3/8" THRU 6"
7"	.85	.77	.71	.66	.61	.57	.54
9-1/2"	.89	.83	.78	.74	.69	.67	.64
13-1/2"	.91	.87	.83	.79	.76	.73	.70
24"	.95	.92	.90	.87	.85	.83	.81

NOTE: Multiply the required torque by the decimal figures given in this table to obtain the actual wrench reading.

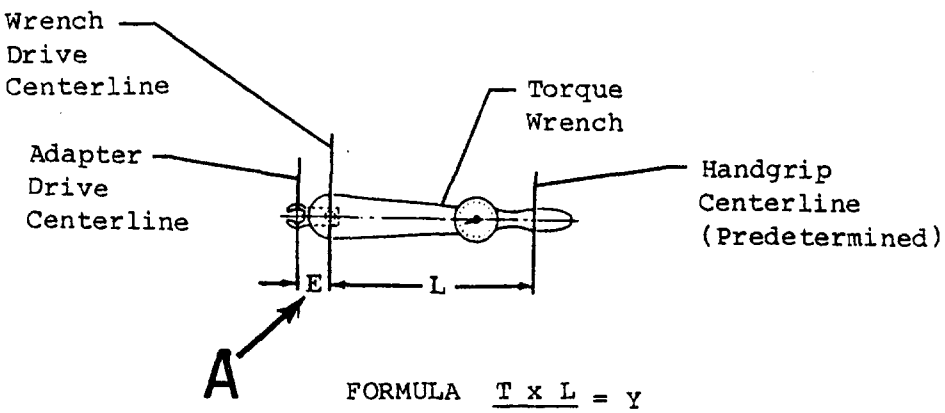
Adapter Use Torque Values
Figure 3

TO OBTAIN A TORQUE OF IN. LBS. OR FT. LBS.	DIAL MUST READ – WITH UNIVERSAL HELD AT THESE ANGLES						
	10°	20°	30°	40°	45°	50°	60°
10	10.2	10.7	11.5	13.1	14.1	15.6	20.0
20	20.4	21.4	23.0	26.2	28.2	31.2	40.0
30	30.6	32.1	34.5	39.3	42.3	46.9	60.0
40	40.8	42.8	46.0	52.4	56.4	62.4	80.0
60	61.2	64.2	69.0	78.6	84.6	93.6	120.0
80	81.6	85.6	92.0	104.8	112.8	124.8	160.0
100	102.0	107.0	115.0	131.0	141.0	156.0	200.0
120	122.4	128.4	138.0	157.2	169.2	187.2	240.0
140	142.8	149.8	161.0	183.4	197.4	218.4	280.0
180	183.6	192.6	207.0	235.8	253.8	280.8	360.0
200	204.0	214.0	230.0	262.0	282.0	312.0	400.0
220	224.4	235.5	243.0	288.2	310.2	343.5	440.0
240	244.4	256.8	276.0	314.4	338.4	374.4	480.0
260	265.2	278.2	299.0	340.6	366.6	405.6	520.0
280	285.6	299.6	312.0	366.8	394.8	436.8	560.0
300	306.0	321.0	345.0	392.0	423.0	468.0	600.0
320	326.4	342.4	368.0	419.2	451.2	499.2	640.0
340	346.8	363.8	391.0	445.4	479.4	530.4	680.0
360	367.2	385.2	414.0	471.6	507.6	561.6	720.0
380	387.6	406.6	437.0	497.8	535.8	592.8	760.0
400	408.0	428.0	460.0	524.0	564.0	624.0	800.0
420	428.4	449.4	483.0	550.2	602.2	655.0	840.0
440	448.8	470.8	506.0	576.4	620.4	686.4	880.0
460	469.2	492.2	529.0	593.6	648.6	717.6	920.0
480	489.6	512.6	552.0	628.8	676.8	748.8	960.0
500	510.0	535.0	575.0	655.0	705.0	780.0	1000.0

Universal Socket Use Torque Values
Figure 4

TORQUE WRENCH TOLERANCES (Inch-Pounds)			
APPLIED TORQUE	TOLERANCES	APPLIED TORQUE	TOLERANCES
5	4 – 6	350	340 – 363
10	9 – 11	400	388 – 414
15	14 – 16	450	437 – 465
20	19 – 23	500	485 – 517
25	24 – 28	600	582 – 620
30	29 – 33	700	679 – 723
40	39 – 43	750	728 – 775
50	49 – 54	800	776 – 826
60	58 – 64	900	873 – 929
70	68 – 74	1000	970 – 1032
80	78 – 84	1100	1067 – 1135
90	87 – 95	1200	1164 – 1238
100	97 – 105	1300	1261 – 1341
125	121 – 131	1400	1358 – 1444
150	146 – 157	1500	1455 – 1547
200	194 – 208	1600	1552 – 1650
250	243 – 260	1700	1649 – 1753
300	291 – 311	1800	1746 – 1856

NOTE: Tolerances for ft-lbs shall be plus or minus 3% plus 2 ft-lbs for all ranges.



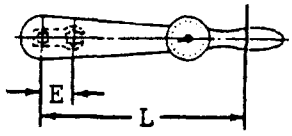
FORMULA $\frac{T \times L}{L + E} = Y$

EXAMPLE (WITH "E" AS PLUS DIMENSION)

T = Torque Required - 135 In.-Lb.
Y = Yield (Adapted Torque) - Unknown
L = Length - 10.0 In.
E = Extension by Adapter - 1.5 In.

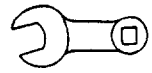
$$Y = \frac{135 \times 10}{10 + 1.5} = \frac{1350}{11.5} = 117.39$$

Y = 117 In.-Lb.



Detail A

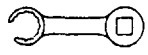
NOTE: If it is necessary to attach adapter drive 180° as shown in Detail A, then 'E' becomes a negative number.



Open-End Wrench Adapter



Short Open End Wrench Adapter



Flare Nut Wrench Adapter



Spanner Wrench Adapter

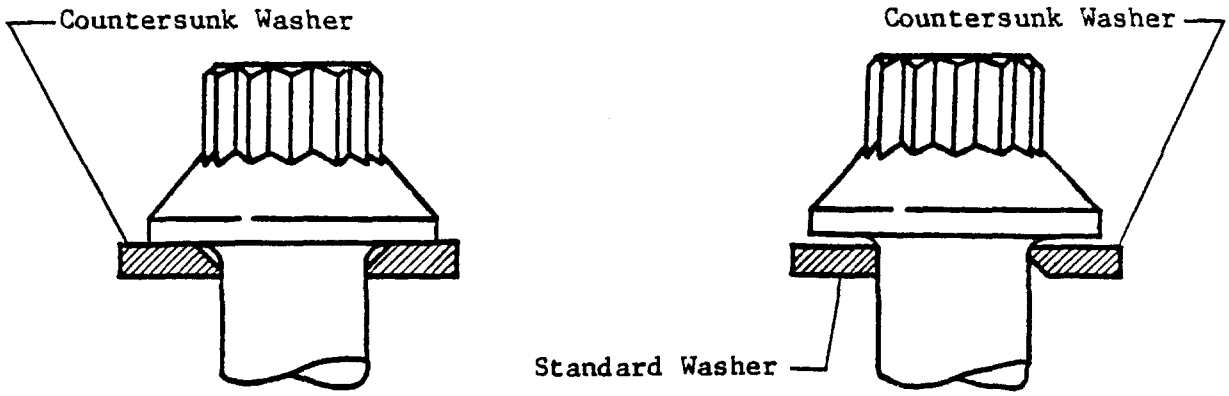


Setscrew Adapter



Hose Clamp Adapter

Torque Wrench Adapter Formulas
Figure 6



Install washer with countersunk face next to bolt head radius

(CORRECT)

(INCORRECT)

Washer Installation
Figure 7

RIVETS AND BLIND FASTENERS

1. DESCRIPTION
   A. Rivets and specially installed fasteners used on this aircraft include conventional solid rivets made of a variety of materials suitable to the materials they join, mechanically expanded blind rivets, Huck lockbolts, Huck bolts.
      (1) Rivet Failures
         (a) Generally speaking, the design of riveted joints is based on the theory that the total joint strength is simply the sum of the individual strengths of a whole group of rivets. It is then obvious that, if any one rivet fails, its load must immediately be carried by others of the group; if they are unable to carry this added load, progressive joint failure then occurs. Stress concentrations will usually cause one rivet to fail first; and careful analysis of such a rivet in a joint will indicate that it has been too highly loaded, with the possibility that neighboring rivets may have partially failed.
         (b) Shear failure is perhaps the most common rivet failure. It is simply a breakdown of the rivet shank by forces acting along the plane of two adjacent sheets, causing a slipping action which may be severe enough to cut the rivet shank in two. If the shank becomes loaded beyond the yield point of the material and remains overloaded, a permanent shift is established in the sheets and the rivet shank may become joggled.
         (c) If the rivet is excessively strong in shear, bearing failure occurs in the sheet at the edge of the rivet hole. The application of large rivets in thin sheets brings about such a failure. In that case, the sheet is locally crushed or buckled, and the buckling destroys the rigidity of the joint. Vibrations, set up by engine operation or by air currents in flight, may cause the buckled portion to flutter and the material to break off close to the rivet head. If buckling occurs at the end of the sheet, a tear-out may result. In either case, replacement of the sheet is necessary.
         (d) Head failure may result from complex loadings occurring at a joint, causing stresses of tension to be applied to the rivet head. The head may fail by shearing through the area corresponding to the rivet shank, or, in thicker sheets, it may fail through a prying action which causes failure of the head itself. Any visible head distortion is cause for replacement. This latter type of head failure is especially common in blind rivets.
      (2) Rivet Inspection
         (a) To obtain high structural efficiency in the manufacture and repair of aircraft, an inspection must be made of all rivets before the part is put in service. This inspection consists of examining both the shop and manufactured heads and the surrounding skin and structural parts for deformities. A scale or rivet gage can be used to check the condition of the upset rivet head to see that it conforms to the proper requirements. Deformities in the manufactured head can be detected by the trained eye alone. However, on flush rivets, a straightedge can be used as shown in Figure 1.
         (b) Some common causes of unsatisfactory riveting are improper bucking, rivet set slipping off or being held at the wrong angle, and rivet holes or rivets of the wrong size. Additional causes for unsatisfactory riveting are countersunk rivets not flush with the well; work not properly fastened together during riveting; the presence of burrs, rivets too hard, too much or too little driving; and rivets out of line.

(c) Occasionally, during an aircraft structural repair, it is wise to examine adjacent parts to determine the true condition of neighboring rivets. In doing so, it may be necessary to remove the paint. The presence of chipped or cracked paint around the heads may indicate shifted or loose rivets. Look for tipped or loose rivet heads. If the heads are tipped or if rivets are loose, they will show up in groups of several consecutive rivets and will probably be tipped in the same direction. If heads which appear to be tipped are not in groups and are not tipped in the same direction, tipping may have occurred during some previous installation.

(d) Inspect rivets known to have been critically loaded, but which show no visible distortion, by drilling off the head and carefully punching out the shank. If, upon examination, the shank appears joggled and the holes in the sheet misaligned, the rivet has failed in shear. In that case, try to determine what is causing the shearing stress and take the necessary corrective action. Flush rivets that show head slippage within the countersink or dimple, indicating either sheet bearing failure or rivet shear failure, must be removed for inspection and replacement.

(e) Joggles in removed rivet shanks indicate partial shear failure. Replace these rivets with the next larger size. Also, if the rivet holes show elongation, replace the rivets with the next larger size. Sheet failures (such as tear-outs, cracks between rivets, and the like) usually indicate damaged rivets, and the complete repair of the joint may require replacement of the rivets with the next larger size.

(f) The general practice of replacing a rivet with the next larger size (1/32 in. greater diameter) is necessary to obtain the proper joint strength of rivet and sheet when the original rivet hole is enlarged. If the rivet in an elongated hole is replaced by a rivet of the same size, its ability to carry its share of the shear load is impaired and joint weakness results.

(g) Loose fasteners must be replaced. They may be shown by the following situations:

1) The fastened material moves relative to the fastener. Skin deflection is evident.
2) Tipping of the fastener head may indicate its loosening or slippage. Rivet head periphery rolled upward also indicates looseness.
3) A black or dark gray stain is found adjacent to or around the fastener head. Generally, it takes the form of a dirt or oily streak aft of the loose fastener.
4) Mark a red line across the fastener head and the adjacent material. Check the line at the next inspection. Any loosening of the fastener will break the line as indicated in Figure 1.

B. When removing a rivet for replacement (see Figure 2), be very careful so that the rivet hole will retain its original size and shape and replacement with a larger size rivet will not be necessary. If the rivet is not removed properly, the strength of the joint may be weakened and the replacement of rivets made more difficult.

(1) When removing a rivet, work on the manufactured head. It is more symmetrical about the shank than the shop head, and there will be less chance of damaging the rivet hole or the material around it. To remove rivets, use hand tools, a power drill, or a combination of both. The preferred method is to drill through the rivet head and drive out the remainder of the rivet with a drift punch. First, file a flat area on the manufactured head of any non-flush rivet, and center punch the flat surface for drilling. Back up the rivet on the upset head when center punching to avoid depressing the metal. The dimple in 2117-T rivets usually eliminates the necessity of filing and center punching the rivet head.

(2) Select a drill one size smaller than the rivet shank and drill out the rivet head. When using a power drill, set the drill on the rivet and rotate the chuck several revolutions by hand before turning on the power. This procedure helps the drill cut a good starting spot and eliminates the chance of the drill slipping off and tracking across the metal. Drill the rivet to the depth of its head, while holding the drill at a 90° angle. Be careful not to drill too deep because the rivet

shank will turn with the drill and cause a tear. The rivet head will often break away and climb the drill, which is a good signal to withdraw the drill. If the rivet head does not come loose of its own accord, insert a drift punch into the hole and twist slightly to either side until the head comes off.

(3) Drive out the shank of the rivet with a drift punch slightly smaller than the diameter of the shank. Support the sheet with a bucking bar while driving out the shank. If the shank is exceptionally tight after the rivet head is removed, drill the rivet about two-thirds of the way through the thickness of the material and then drive out the remainder of the rivet with a drift punch.

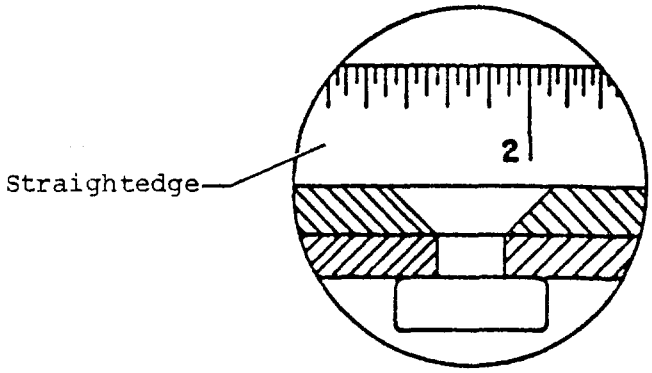
(4) The procedure for the removal of flush rivets is the same as that just described except that no filing is necessary. Be very careful to avoid elongation of the dimpled or the countersunk holes. The rivet head shall be drilled to approximately one-half the thickness of the top sheet.

C. For details of rivet codes and blind fasteners, see Figure 3.

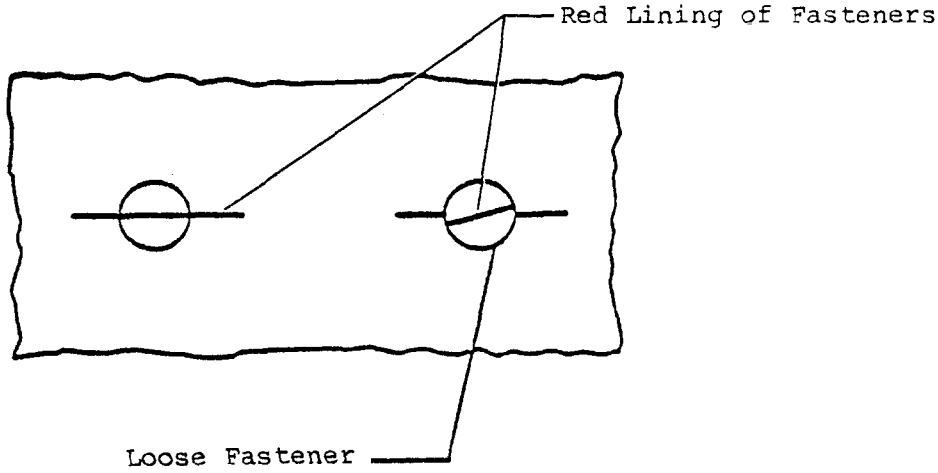
D. Holes and countersinks for rivets and blind fasteners shall be created within tolerances specified in Figures 4 thru 13.

(1) In repairs where edge distance has not been established by previous installations, the following shall apply: Minimum acceptable edge distance shall be not less than 1.5 times the rivet diameter for universal head rivets and 2 times the rivet diameter minus 0.03 inch (.0762 mm) for countersunk head rivets as measured from the rivet centerline to the closed edge.

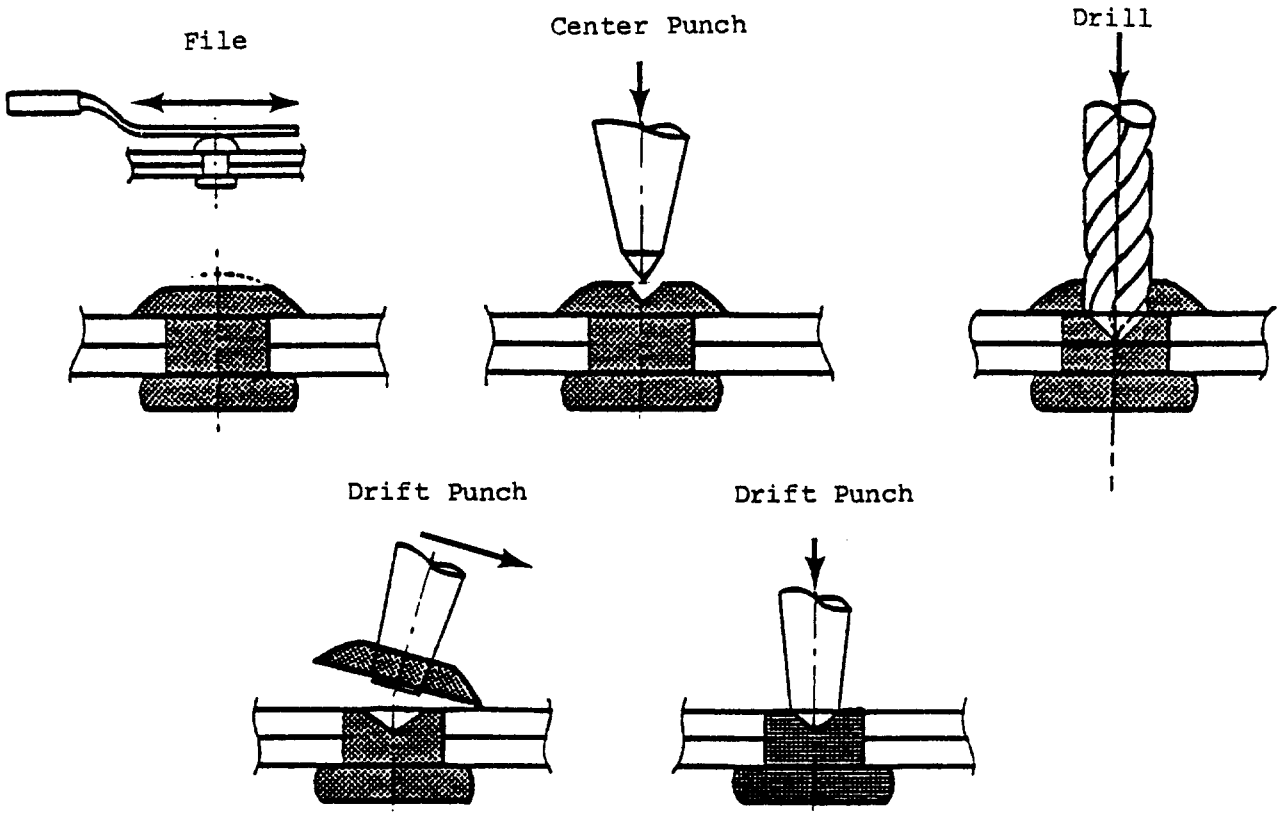
(2) Minimum spacing for rivets in a row is 3 times the rivet diameter. Maximum spacing for rivets is one inch (25.4 mm). Distance between rows of rivets in a web or skin patch is 5 times the rivet diameter.



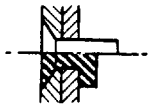
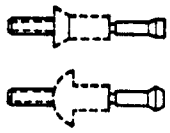
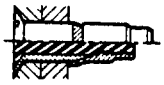
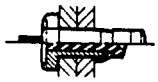
Straightedge used to check rivet flushness



Rivet Inspection
Figure 1



Solid Shank Rivet Removal
Figure 2

SKETCH OF FASTENER	CALLOUT	MATERIAL	REMARKS
Conventional Rivets			
	MS20470AD	2117-T3	
	MS20426AD NAS1097AD S-194	2117-T3 2117-T4 2117-T4	Tension Head – Large Head Shear Head – Small Head Crown Flush Shear Head – Skin Attach – Order from Learjet Spares
Blind Fasteners			
	CR3212	5056	Cherry Rivet, 100° Flush Head Cherry Rivet
			Jo-Bolt Rivet
			Jo-Bolt Rivet
			Jo-Bolt Rivet
			Huck Rivet
			Huck Rivet

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Rivet and Blind Fastener Identification
Figure 3 (Sheet 1 of 3)

SKETCH OF FASTENER	CALLOUT	MATERIAL	REMARKS
	CSR903B	Ti/Cb	Cherry Rivet, Universal Head
	CSR902B	Ti/Cb	Cherry Rivet, 100° CSK Head
	CSR904B	Ti/Cb	Cherry Rivet, 100° CSK Head
	CSR924F	Ti (6-4)	Cherry Rivet, Solid, 100° Flush Head
	CR3242	5056	Cherry Rivet, 100° Flush Head
	CR3243	5056	Cherry Rivet, Universal Head
	CR2838CW		
	CR2839CW		
	HL18 Pin		Hi-Lok Hi-Shear
	HL79 Collar		
	HL19 Pin		
	HL79 Collar		
	HL19 Pin		
	HL86 Collar		
	HL19 Pin		
	HL82AW Collar		
	HL40 Pin		
	HL97V Collar		
	HL18 Pin		
	HL82 Collar		
	HL19 Pin		Hi-Lok
	HL82 Collar		Hi-Shear
	HL20 Pin		
	HL75 Collar		
	HL21 Pin		
	HL75 Collar		
	HL12 Pin		
	HL198 Collar		
	HL12 Pin		
	HL86 Collar		
	HL12 Pin		
	HL75 Collar		

Rivet and Blind Fastener Identification
Figure 3 (Sheet 2 of 3)

SKETCH OF FASTENER	CALLOUT	MATERIAL	REMARKS
	HL13 Pin HL198 Collar HL13 Pin HL86 Collar HL13 Pin HL75 Collar HL10 Pin HL198 Collar HL30-10-6 Bolt HL94-10 Collar		

Rivet and Blind Fastener Identification
Figure 3 (Sheet 3 of 3)

RIVET DIA.	DRILL SIZE	NOMINAL DIA.	HOLE TOLERANCE STANDARD MATERIAL THICKNESS thru 0.049	0.050 thru 0.102	0.103 thru 0.125	HOLE TOLERANCE LIQUID & GAS TIGHT MATERIAL THICKNESS All Thicknesses ▷1
1/16	52	0.064	0.064 0.069	0.064 0.072	0.064 0.072	– –
3/32	40	0.098	0.098 0.103	0.098 0.106	0.098 0.106	0.097 0.102
1/8	30	0.128	0.128 0.133	0.128 0.136	0.128 0.136	0.127 0.132
5/32	21	0.159	0.159 0.167	0.159 0.169	0.159 0.169	0.158 0.163
3/16	11	0.191	0.191 0.199	0.191 0.201	0.191 0.201	0.189 0.194
1/4	F	0.257	0.257 0.265	0.257 0.267	0.257 0.267	0.252 0.257
5/16	O	0.316	0.316 0.324	0.316 0.327	0.316 0.330	0.314 0.319
3/8	V	0.377	0.377 0.385	0.377 0.388	0.377 0.391	0.377 0.383

▷1 For gas- or liquid-tight areas, hole diameters for "liquid and gas tight" must be used.

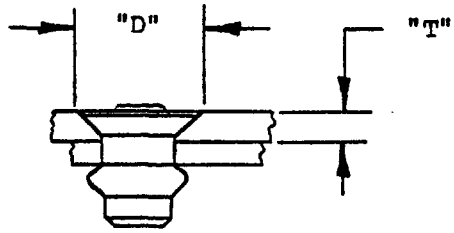
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Holes for all Driven Rivets
Figure 4

STANDARD DIA. RIVETS REF: Cherrymax (Nominal) Wiredraw Cherrylock Huck "Conical Keystone" Huck "General Purpose" Etc.				1/64" OVERSIZE DIA. RIVETS REF: Bulbed Cherrylock Cherrymax (Oversize) Etc.			
RIVET DIA.	DRILL SIZE	HOLE DIA.		RIVET DIA.	DRILL SIZE	HOLE DIA.	
		MIN.	MAX.			MIN.	MAX.
3/32	40	0.098	0.100	–	–	–	–
1/8	30	0.128	0.132	1/8	27	0.143	0.146
5/32	20	0.160	0.164	5/32	16	0.176	0.180
3/16	11	0.191	0.196	3/16	5	0.205	0.209
1/4	F	0.256	0.261	–	–	–	–

Holes for Mechanically Expanded Blind Rivets
Figure 5

BLIND BOLT DIA.	HOLE DIA.		COUNTERSINK DIA.		MATERIAL THICKNESS "T" MIN.	COUNTERSINK ANGLE
	MIN.	MAX.	"D" MIN.	"D" MAX.		
5/32	0.164	0.167	0.329	0.339	0.080	100° (±1°)
3/16	0.199	0.202	0.381	0.391	0.090	100° (±1°)
1/4	0.260	0.263	0.504	0.514	0.125	100° (±1°)
5/16	0.312	0.315	0.623	0.642	0.160	100° (±1°)
3/8	0.374	0.378	0.764	0.774	0.180	100° (±1°)



Holes and Countersinks for Huck Blind Bolts
(BP-T or MS90354; B100T or MS90353)
Figure 6

LOCK BOLT DIA.	HOLE DIA.	
	MIN.	MAX.
5/32	0.154	0.156
3/16	0.187	0.189
1/4	0.247	0.249
5/16	0.310	0.312
3/8	0.372	0.374

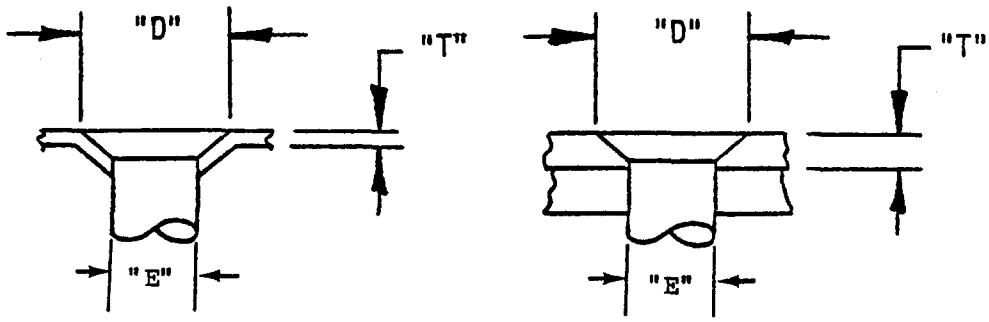
Holes for Huck Lockbolts
Figure 7

TYPE	STD. DIA.	COLLAR (REF)	1/64" O.S. DIA.	COLLAR (REF)	1/32" O.S. DIA.	COLLAR (REF)
P.H. Shear	HL18	HL70	HL62	HL79	HL218	HL84
CSK. Shear	HL19	HL70	HL63	HL79	HL219	HL84
P.H. Tension	HL20	HL86	HL64	HL87	HL220	HL93
CSK. Tension	HL21	HL86	HL65	HL87	HL221	HL93
SIZE	**PIN DIA. (REF)**	**HOLE DIA.**	**PIN DIA. (REF)**	**HOLE DIA.**	**PIN DIA. (REF)**	**HOLE DIA.**
-5	0.1635 0.1625	0.1640 0.1610	N/A –	– –	N/A –	– –
-6	0.1895 0.1885	0.1900 0.1870	0.2026 0.2016	0.2031 0.2001	0.2182 0.2172	0.2187 0.2157
-8	0.2495 0.2485	0.2500 0.2470	0.2651 0.2641	0.2656 0.2626	0.2807 0.2797	0.2812 0.2782
-10	0.3120 0.3110	0.3125 0.3095	0.3276 0.3266	0.3281 0.3251	0.3432 0.3422	0.3437 0.3407
-12	0.3745 0.3735	0.3750 0.3720	0.3901 0.3891	0.3906 0.3876	0.4057 0.4047	0.4062 0.4032
-14	0.4370 0.4360	0.4375 0.4345	0.4526 0.4516	0.4531 0.4501	0.4682 0.4672	0.4687 0.4657
-16	0.4995 0.4985	0.5000 0.4970	0.5151 0.5141	0.5156 0.5126	0.5307 0.5297	0.5312 0.5282

Holes for Hi-Lok Bolts - Standard and Oversize
Figure 8

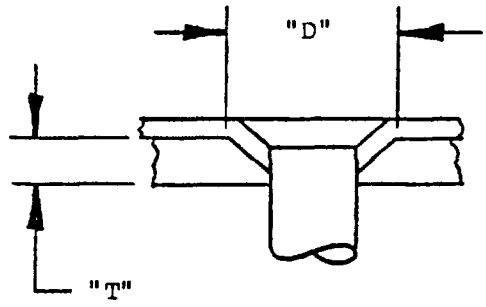
FLUSH TENSION HEAD RIVET				FLUSH SHEAR HEAD RIVET			
RIVET DIA. "E"	COUNTERSINK DIA.		MATERIAL THICKNESS "T"MIN.	COUNTERSINK DIA.		MATERIAL THICKNESS "T"MIN.	COUNTERSINK ANGLE
	"D"Min.	"D"Max.		"D"Min.	"D"Max. ▷1		
1/16	0.137	0.147	0.025	–	–	–	100° (±2°)
3/32	0.170	0.174	0.040	0.141	0.148	0.025	100° (±2°)
1/8	0.216	0.220	0.050	0.188	0.196	0.032	100° (±2°)
5/32	0.277	0.281	0.063	0.240	0.247	0.040	100° (±2°)
3/16	0.344	0.348	0.071	0.297	0.302	0.050	100° (±2°)
1/4	0.466	0.471	0.100	0.390	0.395	0.063	100° (±2°)

▷1 Flush shear head rivets may be NAS1097 or made by driving MS20426 rivets high and shaving.



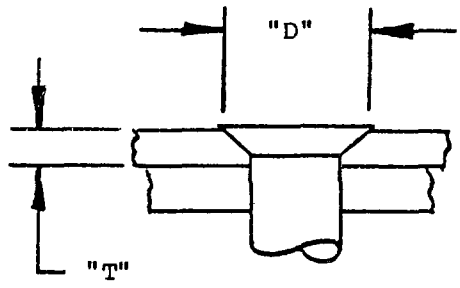
Countersinks and Dimples in Non-Fluid and Non-Gas-Tight Areas for MS20426 (Flush Tension Head) and NAS1097 (Flush Shear Head) Rivets and Other Rivets Having These Head Styles
Figure 9

RIVET DIA.	COUNTERSINK DIA.		MATERIAL THICKNESS "T" MIN.	COUNTERSINK ANGLE
	"D"Min.	"D"Max.		
3/32	0.182	0.192	0.040	105° (±2°)
1/8	0.235	0.245	0.050	105° (±2°)
5/32	0.295	0.305	0.063	105° (±3°)
3/16	0.369	0.381	0.080	105° (±3°)
1/4	0.503	0.515	0.112	105° (±4°)



Countersinks to Receive Dimples for Flush Tension Head (MS20426 and S194) Rivets
Figure 10

RIVET DIA.	COUNTERSINK DIA.		MATERIAL THICKNESS "T" MIN.	COUNTERSINK ANGLE
	"D"Min.	"D"Max.		
3/32	0.160	0.165	0.040	100° (±1/2°)
1/8	0.206	0.211	0.050	100° (±1/2°)
5/32	0.267	0.272	0.063	100° (±1/2°)
3/16	0.334	0.339	0.071	100° (±1/2°)
1/4	0.457	0.462	0.100	100° (±1/2°)



NOTE: • For liquid- or gas-tight areas, countersinks for liquid- and gas-tight holes must be used.

• Countersink dimensions are chosen so that manufactured rivet head will be "high" after driving. This may necessitate shaving depending upon flushness requirements. Flush shear head rivets (NAS1907 head style) are not to be used in liquid- or gas-tight applications.

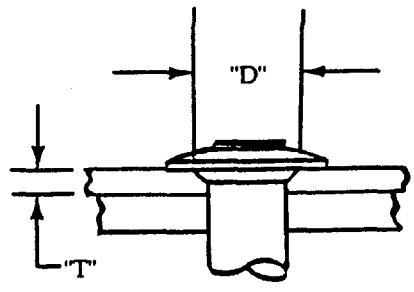
Countersinks for Liquid- and Gas-Tight Holes for Flush Tension Head (MS20426 and S194) Rivets
Figure 11

NOMINAL BOLT DIA.	FLUSH SHEAR HEAD BOLT			FLUSH TENSION HEAD BOLT		
	STD. DIA. (REF) ▷1	1/64 O.S. DIA. (REF) ▷1	1/32 O.S. DIA. (REF) ▷1	STD. DIA. (REF) ▷1	1/64 O.S. DIA. (REF) ▷1	1/32 O.S. DIA. (REF) ▷1
-5 (5/32)	0.2588	–	–	0.3280	–	–
-6 (3/16)	0.2991	0.2991	0.3278	0.3789	0.3789	0.3789
-8 (1/4)	0.3923	0.3923	0.4235	0.5042	0.5042	0.5042
-10 (5/16)	0.471	0.471	0.5026	0.6311	0.6311	0.6311
-12 (3/8)	0.5579	0.5579	0.5891	0.7580	0.7580	0.7580
-14 (7/16)	0.6650	0.6650	0.6962	0.8848	0.8848	0.8848
-16 (1/2)	0.7510	0.7510	0.7822	1.0104	1.0104	1.0104

▷1 The head height of all Hi-Lok bolts common to an aerodynamic surface must meet the installation requirements per 51-40-04. The head height of all Hi-Lok bolts not common to an aerodynamic surface may deviate plus or minus 0.010 inch height from the adjacent surface.

Countersinks for 100° Flush Head Hi-Lok Bolts - Standard and Oversize
Figure 12

RIVET DIA.	COUNTERSINK DIA.		MATERIAL THICKNESS "T" MIN.	COUNTERSINK ANGLE
	"D"Min.	"D"Max.		
1/8	0.167	0.173	0.020	100° (±2°)
5/32	0.210	0.216	0.025	100° (±2°)
3/16	0.252	0.258	0.032	100° (±2°)



Countersinks for Unisink Head Cherry Rivets
Figure 13

E. Solid Shank Rivets

(1) The solid shank rivets in general use on this aircraft are made from 2117 aluminum alloy. In some locations rivets made from 5056 or 1100 aluminum alloy are used. Rivet part numbers have a suffix denoting the material, while the actual rivet bears a head marking as listed in Table 1.

MATERIAL	SUFFIX	HEAD MARKING
2117	AD	Dimple
5056	B	Raised Cross
1100	A	None

Table 1

(2) Rivets made from 2117, 5056, and 1100 aluminum alloy can be stored and used at room temperature.

(3) Solid rivets can be installed by the use of a rivet gun and bucking bar or a suitable squeeze riveting tool. Rivet guns and bucking bars must be large enough to drive the rivets quickly. Three to four seconds driving duration is the optimum, while seven seconds should be the maximum. Bucking bars should be very smooth when driving aluminum alloy rivets.

(4) Figure 14 shows the grip ranges, shank projection before driving, and the driven head sizes for solid shank rivets used in non-fluid-tight applications.

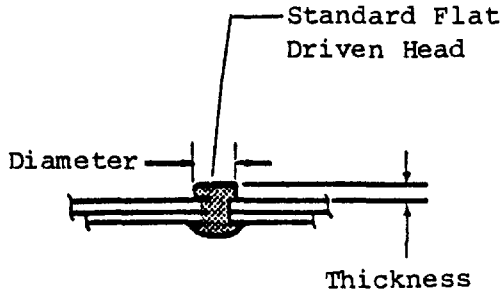
(5) On assemblies where the direction of driving is optional, it is desirable to form the driven head against the thicker sheet or harder material.

(6) The die or rivet set shall fit the manufactured head of the rivet. Flat dies may be used on the manufactured head of universal head rivets provided the head is not flattened to dimensions less than those listed in Figure 14.

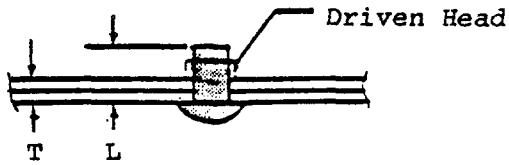
(7) The driven rivet shall completely fill the hole. Peening of the driven head by rolling the bucking bar is not permitted since the rivet hole will not be filled.

(8) Aluminum rivets used to fasten stainless steel, monel rivets used to fasten aluminum, and any rivet material other than 5056 aluminum used to fasten magnesium, shall be driven in wet epoxy primer per 51-30-04, wet epoxy, or faying surface sealer (Pro-Seal 890) (MIL-S-8802).

STANDARD DRIVEN HEAD DIMENSIONS FOR RIVETS			
RIVET DIAMETER	MINIMUM HEAD DIAMETER	HEAD THICKNESS	
		MIN.	MAX.
1/16	0.081	0.025	0.040
3/32	0.122	0.038	0.050
1/8	0.163	0.050	0.070
5/32	0.203	0.062	0.092
3/16	0.244	0.075	0.105
7/32 ▷	0.285	0.087	0.110
1/4	0.325	0.100	0.130
9/32	0.365	0.113	0.140
5/16	0.406	0.125	0.158
11/32 ▷	0.450	0.137	0.170
3/8	0.488	0.150	0.190
13/32 ▷	0.530	0.165	0.200
▷ Oversize Replacements			

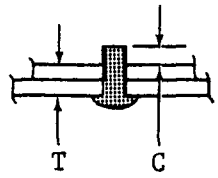


GRIP RANGES FOR RIVET LENGTHS AND DIAMETERS													
RIVET LENGTH "L"		1/8 DIA. GRIP "T"		5/32 DIA. GRIP "T"		3/16 DIA. GRIP "T"		1/4 DIA. GRIP "T"		5/16 DIA. GRIP "T"		3/8 DIA. GRIP "T"	
Fraction	Dash #	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
5/32	-2.5	.015	.057	–	–	–	–	–	–	–	–	–	–
3/16	-3	.058	.094	.020	.071	–	–	–	–	–	–	–	–
1/4	-4	.095	.130	.072	.124	.064	.120	–	–	–	–	–	–
5/16	-5	.131	.178	.125	.187	.121	.175	.091	.103	–	–	–	–
3/8	-6	.179	.230	.188	.249	.176	.219	.104	.175	–	–	–	–
7/16	-7	.231	.295	.250	.314	.220	.276	.176	.216	–	–	–	–
1/2	-8	.296	.350	.315	.375	.277	.335	.217	.263	.242	.298	–	–
9/16	-9	.351	.410	.376	.426	.336	.394	.266	.339	.299	.355	–	–
5/8	-10	.411	.468	.429	.481	.395	.453	.340	.385	.356	.410	.188	.250
11/16	-11	.469	.525	.482	.530	.454	.513	.386	.445	.411	.467	.251	.313
3/4	-12	.526	.597	.531	.587	.514	.569	.446	.491	.468	.524	.314	.375
13/16	-13	.598	.648	.588	.638	.570	.625	.492	.548	.525	.581	.376	.437
7/8	-14	.649	.715	.639	.702	.626	.680	.549	.602	.582	.630	.438	.500
15/16	-15	.716	.772	.703	.758	.681	.736	.603	.675	.631	.687	.501	.563
1	-16	.773	.840	.759	.810	.737	.791	.676	.728	.688	.744	.564	.625



Dimensions for Driving Rivets
Figure 14 (Sheet 1 of 2)

AVERAGE NOMINAL PROJECTION BEFORE DRIVING FOR RIVETS UP TO 1/2-INCH LONG		
RIVET DIAMETER	"C"	
1/16	0.093	
3/32	0.120	
1/8	0.156	
5/32	0.156	
3/16	0.180	
1/4	0.250	
5/16	0.256	
3/8	0.406	



MINIMUM FLATTENING DIMENSION OF MANUFACTURED RIVET HEADS (MS20470 UNIVERSAL HEAD RIVET)	
RIVET DIAMETER	"C"
3/32	0.032
1/8	0.042
5/32	0.052
3/16	0.062
1/4	0.083
5/16	0.104
3/8	0.125

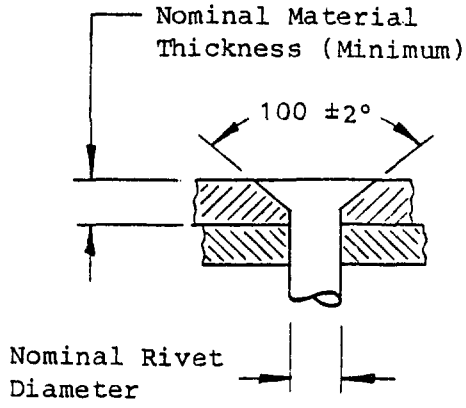
Dimensions for Driving Rivets
Figure 14 (Sheet 2 of 2)

(9) Flush Driven Rivets in Non-Fluid and Non-Gas-Tight Areas.
  (a) When a flush tension head rivet is to be installed in material too thin for a standard countersink (see Figure 16) (a condition that would result in a knife edge of the material), install a rivet of same size and material per paragraph (9)(b) or (9)(c).
  (b) It is permissible to install a flush shear head rivet and drive flush. The hole and countersink are to be per Figures 4 and 9.
  (c) It is permissible to install a flush tension head rivet high and shave flush. The hole size is to be per Figure 4 and the countersink diameter and angle are to be per Figure 16.
  (d) Dimples shall nest into other dimples or countersinks so that before riveting there is a minimum gap between adjacent sheets of 0.001 inch (.0254 mm) and a maximum gap before or after riveting of 0.005 inch (.127 mm) except that a sheet separation of 0.010 inch (.254 mm) will be allowed adjacent to 20 percent (not consecutive) of the rivets. The sheet separation limitations described above shall be measured immediately adjacent to the dimple or countersink. The maximum sheet separation after dimpling, measured midway between rivets, shall be 0.008 inch (.2032 mm) except that a maximum sheet separation of 0.015 inch (.381 mm) will be permissible between 20 percent (not consecutive) of the rivets. (See Figure 17.)
  (e) The projection of flush head rivets used to allow contact of faying surfaces shall not be sufficient to cause interference between parts. In no case shall the rivet head project more than 0.010 inch (.254 mm) above the sheet or be below the surface.

(10) Flush tension head rivets for liquid- and gas-tight installation shall be driven high and shaved flush.
  (a) Hole size, countersink diameter, and countersink angle shall be per Figures 4 and 11.
  (b) Rivets must meet surface flush requirements of 51-40-04 if applicable.
  (c) Rivet head diameter after shaving shall meet requirements of Figure 16.
  (d) Rivet head protrusion before and after driving shall meet requirements of Figure 18.

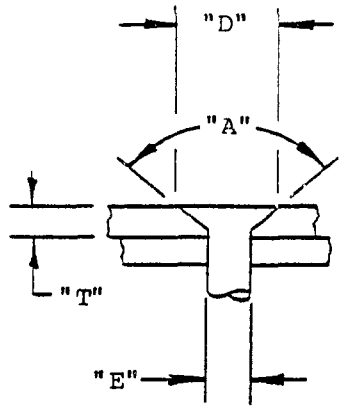
(11) The manufactured head of flush tension head rivets (and the driven head on double flush rivets) must completely fill the countersink or dimple. The manufactured head of flush shear head rivets must seat tightly in the countersink or dimple. Gaps between the countersink or dimple and the head of a flush shear head rivet which will allow the insertion of a 0.001 inch (.0254 mm) feeler gauge are unacceptable. Gaps between the countersink or dimple and the head of flush shear head rivets which will not allow the insertion of a 0.001 inch (.0254 mm) feeler gauge are acceptable provided that the gap does not extend for more than 40% of the head circumference. All flush head rivets driven below flush are unacceptable. (See Figure 19.)

NOMINAL RIVET DIA.	NOMINAL MATERIAL THICKNESS (Minimum)
1/16	0.025
3/32	0.040
1/8	0.050
5/32	0.063
3/16	0.071
1/4	0.100

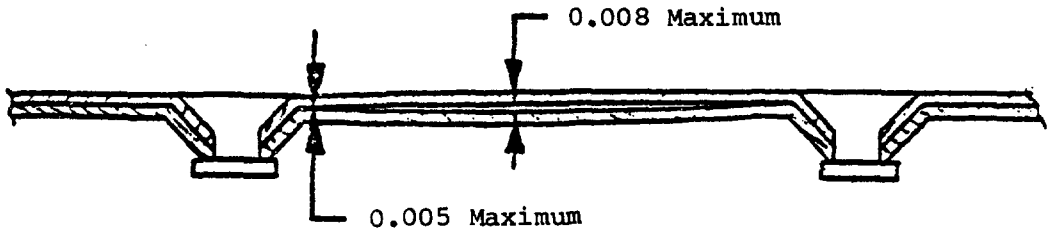


Minimum Material Thickness for Flush Tension Head Rivet Installation
Figure 15

NOMINAL RIVET DIA. "E"	3/32	1/8	5/32	3/16	1/4
Countersink Dia. "D"	0.141 0.148	0.188 0.196	0.240 0.247	0.297 0.302	0.390 0.395
Nominal Material Thickness "T" (Minimum)	0.025	0.032	0.040	0.050	0.063
Countersink Angle "A"	100° (±2°)				



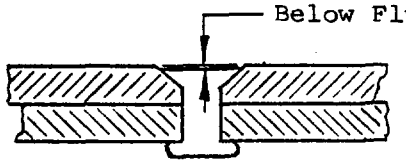
Installation Specifications for Flush Tension Head Rivets
Installed High and Shaved Flush
Figure 16



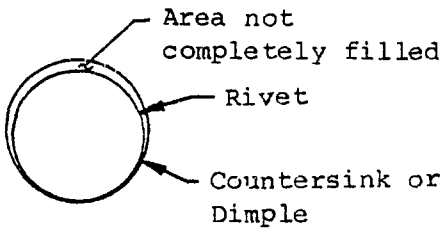
Maximum Sheet Gap Between Rivets and Dimpled Sheets
Figure 17

NOMINAL RIVET DIAMETER		3/32	1/8	5/32	3/16	1/4
Countersink Diameter Refer to figure 11, "Countersink for Liquid- and Gas-Tight Holes"	Max.	0.165	0.211	0.272	0.339	0.462
	Min.	0.160	0.206	0.267	0.334	0.457
Head Protrusion	Max.	0.010	0.010	0.010	0.010	0.010
Prior to Driving	Min.	0.004	0.004	0.004	0.004	0.004
Head Protrusion	Max.	0.008	0.008	0.008	0.008	0.008
After Driving	Min.	0.002	0.002	0.002	0.002	0.002
Countersink Angle Refer to figure 11, "Countersinks for Liquid- and Gas-Tight Holes"		100° (±1/2°)				

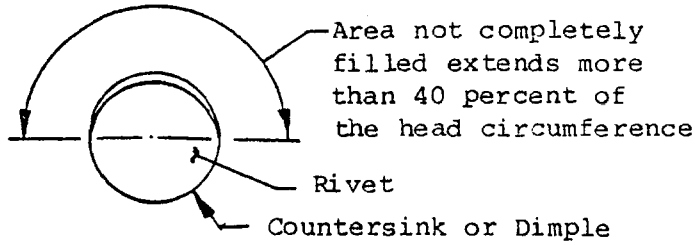
Flush Tension Head Rivets Protrusion Specifications For
Liquid- and Gas-Tight Installations
Figure 18



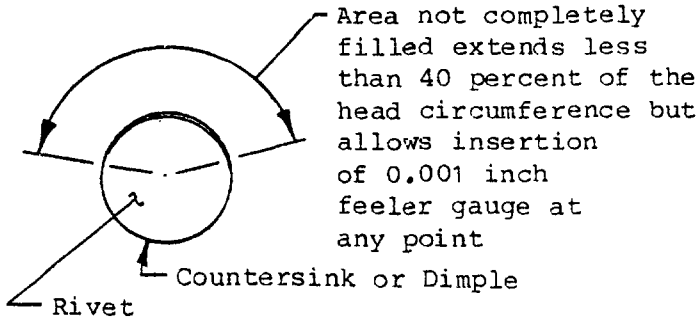
Unacceptable for all Flush Head Driven Rivets



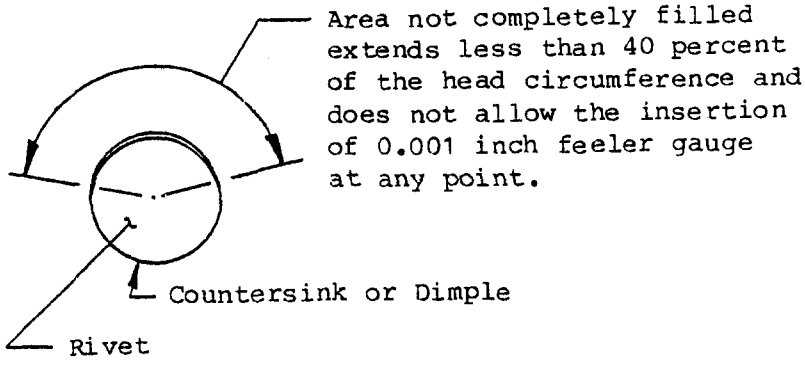
Unacceptable for Flush Tension Head Rivets (and the driven head on double flush rivets)



Unacceptable for Flush Shear Head Rivets



Unacceptable for Flush Shear Head Rivets

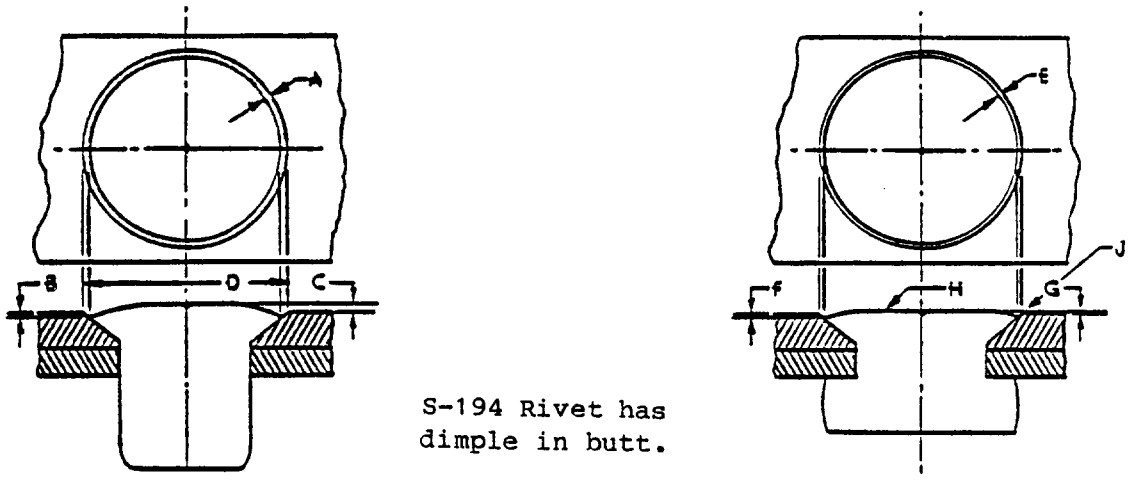


Acceptable for Flush Shear Head Rivets

Acceptance Specifications for Flush Head Driven Rivets
Figure 19

(12) Crown flush rivets S-194 are used to attach most external skin panels on the Learjet. Before driving, S-194 rivets installed in countersinks shall appear as follows and as shown in Figure 20.
(a) Slightly exposed countersink is visible.
(b) Edge of rivet head is always low.
(c) Crown is always high (0.008 inch [.2032 mm] high, maximum).
(d) Countersink diameters are per Figure 11. After driving, S-194 rivets shall appear as follows and as shown in Figure 20.
(e) Visible exposed countersink is acceptable.
(f) Edge of rivet head can be same height as rivet head crown to slightly below skin surface.
(g) Crown shall be flush to high per 51-40-04.
(h) Rivet heads shall not be shaved.
(i) A 0.001 feeler cannot be installed between rivet head and countersink at any point.

NOTE: All the above conditions must exist for rivet installation acceptance.



S-194 RIVET BEFORE DRIVING

S-194 RIVET AFTER DRIVING

Acceptance Specifications for S-194 Crown Flush Rivet Installation
Figure 20

(13) Shaving of flush shear head rivets is not allowed.
(14) Shaving of flush tension head rivets to meet surface flushness requirements of 51-40-04 is allowed.
(15) Flush tension head rivets installed in a liquid- or gas-tight area that have been driven high and shaved flush, shall be checked for loss of tensile strength per Table 2.

CHECKING DIMENSIONS - RIVET SHAVING - FLUSH SHEAR HEAD RIVETS					
Nominal Rivet Diameter	3/32"	1/8"	5/32"	3/16"	1/4"
Minimum Head Diameter after Shaving	0.160"	0.206"	0.267"	0.334"	0.450"

Table 2

(16) Flush tension head rivets that have been driven high and shaved flush to function as a flush shear head rivet, shall be checked for loss of shear strength per Table 3.

CHECKING DIMENSIONS - RIVET SHAVING - FLUSH TENSION HEAD RIVETS					
Nominal Rivet Diameter	3/32"	1/8"	5/32"	3/16"	1/4"
Minimum Head Diameter after Shaving	0.148"	0.196"	0.247"	0.302"	0.395"

Table 3

(17) Cracked Driven Heads
(a) Cracks in driven heads are undesirable and must be kept to a minimum.

NOTE: 2117-T4 rivets are driven in hard condition; therefore, a large percentage will have diagonal cracks if driven 1.5 times the shank diameter. For this reason, care should be taken to keep the driven head to 1.3 times the shank diameter per Figure 14.

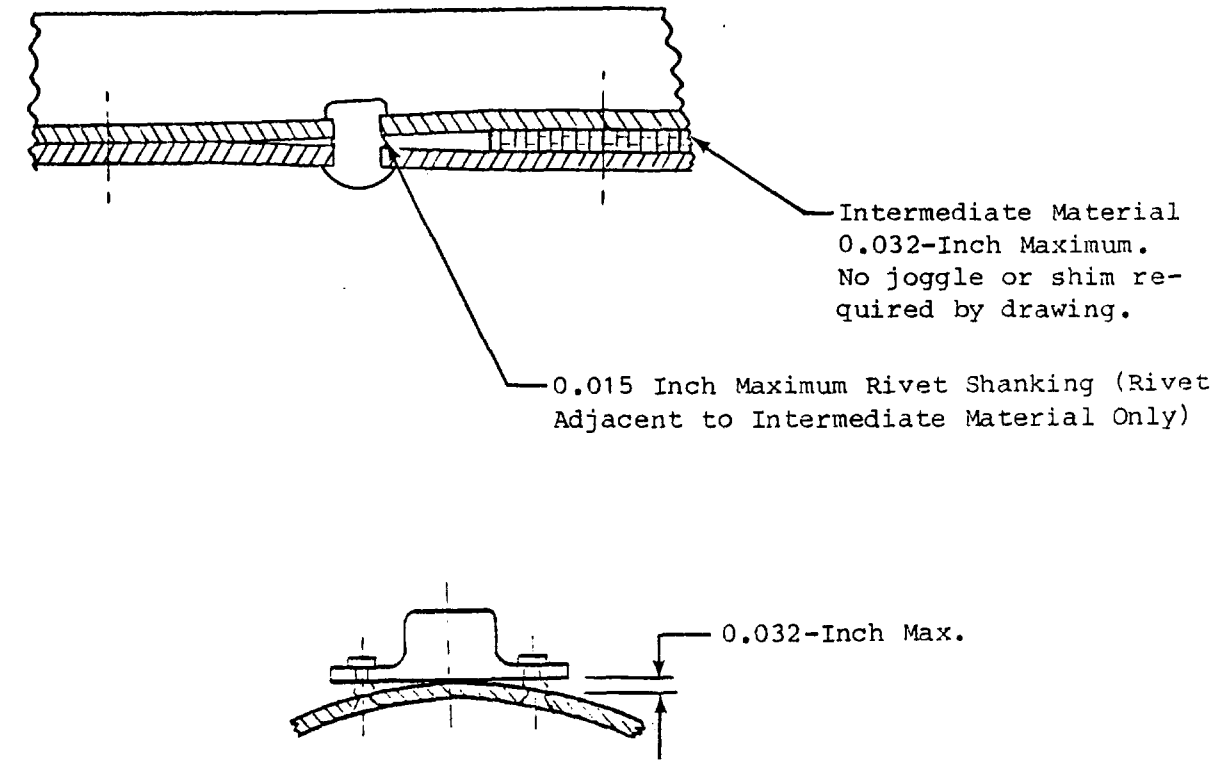
(b) Cracks on the sides of driven heads which run at a 45° angle to the flat surface of the head are caused by upsetting the rivet material beyond the limit of its ductility. Diagonal cracks shall be evaluated as follows:
1) Hairline or superficial cracks are allowable in all cases regardless of their numbers. Intersecting superficial cracks are also acceptable.
2) Rivets having as many as three diagonal cracks which do not intersect are acceptable.
3) Rivets with severe cracks are not acceptable and should be replaced.

(c) There are two types of vertical cracks: one caused by a lap in rivet wire, and the other caused by overheat treating the rivets. It is very important to distinguish between these two types.
1) Cracks due to lap in rivet wire appear infrequently. The surface exposed by the cracks will be smooth and dull in appearance and will be only a few thousandths deep (0.005 to 0.015 [.0127 to .381 mm]). These cracks are acceptable.
2) When cracks from overheating appear, they are usually found in a large percentage of the rivets being driven. This cracking is due to excessive temperatures being reached during the heat treatment of the rivet. These cracks are not acceptable, and rivets having these vertical cracks on either head shall be rejected. The batch which was overheated should be segregated and scrapped because the ductility cannot be restored by reheat treatment.

(18) Bell-shaped driven heads are formed by use of too light a bucking bar or by rocking the bucking bar. *Rivets which show evidence of this condition should be rejected since the rivet hole is poorly* filled and the head has very little bearing surface on the sheet.

(19) Shanked Rivets - Part Separation
(a) A maximum of 0.015 inch (.381 mm) shanking (part separation) is permissible for the rivet adjacent to intermediate material as shown in Figure 22.
(b) Sheet separation shall be less than 0.002 inch (.0508 mm) adjacent to universal, brazier, and countersink driven rivets with a 0.008 inch (.2032 mm) maximum between rivets as shown in Figure 22. If a 0.002 inch (.0508 mm) feeler gauge can be inserted to the shank of the rivet, the rivet shall be considered shanked and is not acceptable. For sheet separation in dimpled material, see Figure 17. In the case of riveting dissimilar metals, where tape is used between the sheets, the total separation of the metallic sheets shall not be greater than the thickness of the tape plus the maximum separation permitted above. The allowable sheet separation of fay sealed joints is 0.004 inch (.1016 mm) at the shank of the rivet.

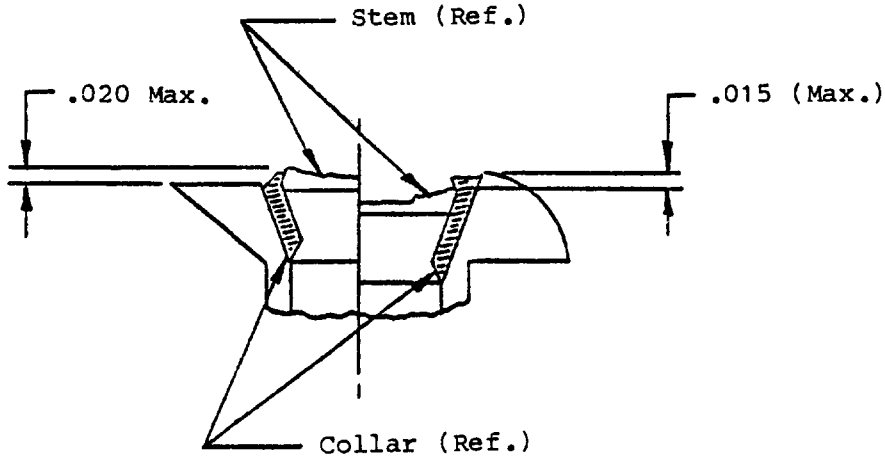
F. Mechanically Expanded Blind Rivets
(1) Blind rivets are intended for use where access is available to only one side of the work.
(2) Blind rivets are installed with special tools in holes specified in Figure 5.
(3) Head gapping on the visible side shall be checked with a 0.002 inch (.0508 mm) feeler gage for both countersunk and protruding head blind rivets. Rivets with more than 0.002 inch (.0508 mm) gap on more than 40 percent of the head circumference are not acceptable.
(4) The flushness of the stem break on installed wiredraw bulbed Cherrylock blind rivets (flush head and protruding head) shall be in accordance with Figure 23.
(5) The flushness of the collar on installed wiredraw bulbed Cherrylock blind rivets shall be in accordance with Figure 23.
(6) The flushness of the stem break on installed Cherrymax blind rivets shall be in accordance with Figure 24.
(7) The flushness of the stem break and collar on installed Huck "Conical Keystone" and Huck "General Purpose" (NAS 1919 and 1921) blind rivets shall be in accordance with Figure 25.
(8) A slight collar "flash" caused by the pressure necessary to install the collar is acceptable within the limit shown in Figure 26 for all Cherry and Huck rivets.
(9) Shaving of installed blind rivets shall be limited to removal of stem and/or removal of collar down to flush with the head of the rivet. The head of the rivet shall not be shaved.
(10) Blind rivets can be removed in a similar manner to that specified for solid rivets.



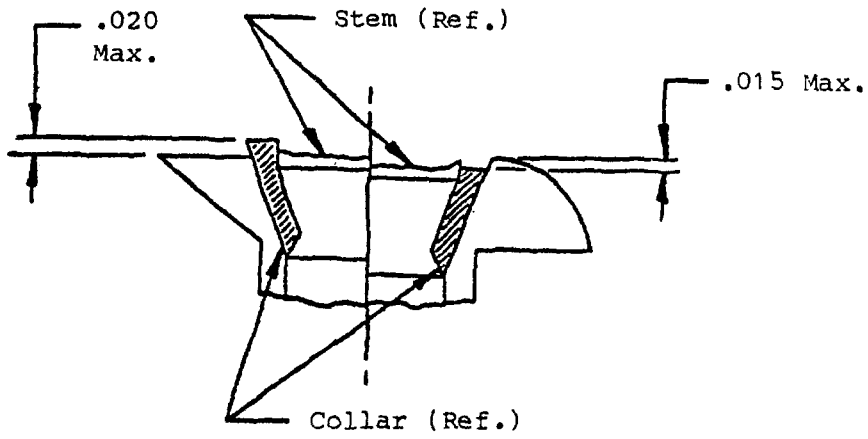
Shanking and Sheet Separation Tolerances
Figure 21

G. Huck Lockbolts
(1) The lockbolt and collar used shall be as originally installed. The collars are lubricated when received from the manufacturer and should be stored away from heat, dirt, and grit until used.
(2) Grip length adjustment of the lockbolts may be accomplished by the use of washers (1/32 inch minimum thickness). For aluminum and steel material, one AN960PD aluminum washer may be used under the head or one AN960 cadmium plated steel washer may be used under the collar. The thickness of the washers shall not exceed 1/16 inch.
(3) Final hole sizes for lockbolts shall be as specified in Figure 7.
(4) Lockbolts shall be installed with tools recommended by the manufacturer. The swaging die for lockbolt collars shall not be tipped more than 3 degrees from the lockbolt axis during driving.
(5) The end of the "broken-off" portion of the pull pin does not require corrosion protection.
(6) Collars cracked after swaging shall be rejected.
(7) The presence of gaps which allow the insertion of a 0.004-inch (.1016 mm) feeler gage between the countersunk or protruding head and the bearing surface shall not be accepted when more than 40 percent of the head circumference has such a gap. In all cases, the cause of the production of gaps shall be eliminated if possible.

NOTE: In case of doubt, lockbolts may be checked for proper swaging of the collar and break-off of the pull pin with the lockbolt inspection gage. See vendor supplied Huck catalog for proper gage (Huck Mfg. Co., 6 Thomas, Irvine, CA 92714).

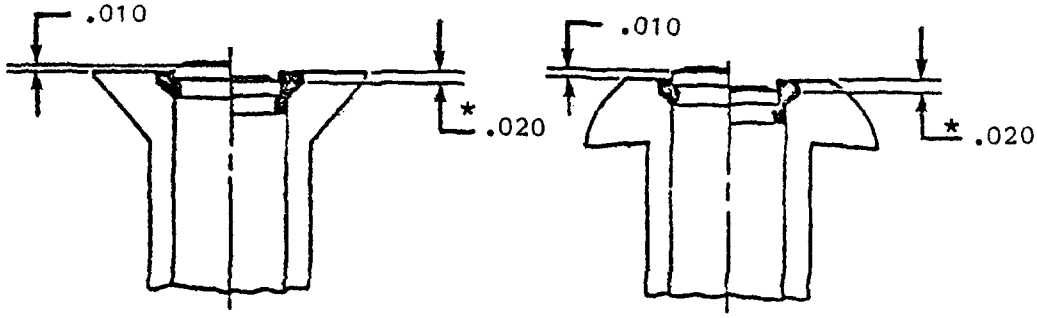


Stem Flushness Specifications for Cherrylock Blind Rivets
Figure 22

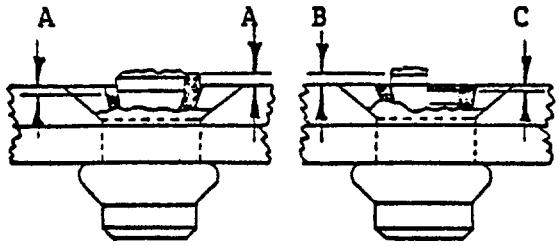


Collar Flushness Specifications for Cherrylock Blind Rivets
Figure 23

*0.015 inch for -4 (0.125 inch) diameter only.

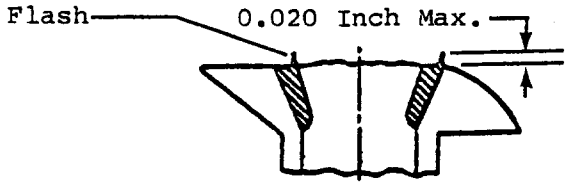


Stem Flushness Specifications for Cherrymax Blind Rivets
Figure 24



RIVET SIZE	"A" MAX.	"B" MAX.	"C" MAX.
1/8	0.012	0.016	0.008
5/32	0.015	0.020	0.010
3/16	0.018	0.024	0.012

Stem and Collar Flushness Specifications for
Huck Conical Keystone and General Purpose Blind Rivets
Figure 25



Allowable Flash on Cherry and Huck Blind Rivets
Figure 26

H. Huck Blind Bolts
   (1) Final hole size for Huck blind bolts shall be as given in Figure 6.
   (2) Huck blind bolts are supplied lubricated. They shall not be degreased or re-lubricated. They shall be stored away from heat, dirt, and grit.
   (3) Dip bolt used in a wet fuel area in Pro-Seal 890 (MIL-S-8802) sealant immediately prior to installation.
   (4) Huck blind bolts shall be installed with tools recommended by the manufacturer. The driving tool shall be held so its axis coincides with the axis of the fastener and perpendicular to the surface.
   (5) The end of the bolt at the break-off point shall be touched up with epoxy primer.
   (6) Where possible, the blind side of the installation shall be inspected to see that proper blind head is formed. (See Figures 27 and 28.) Touch up blind side with Pro-Seal 890 (MIL-S-8802) or Pro-Seal 870 (MIL-S-81733) where possible.

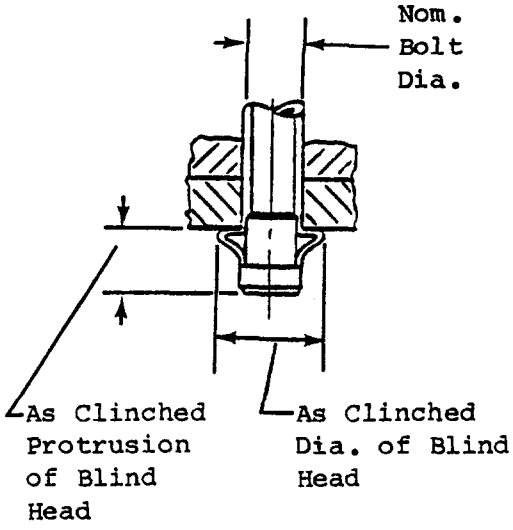
       NOTE: Use Pro-Seal 890 in wet fuel areas only.

   (7) Gaps which allow the insertion of a 0.004 inch (.1016 mm) feeler gage between the countersunk or protruding head and bearing surface shall not be acceptable when more than 40 percent of the head circumference has the gap.
   (8) Gapping under the manufactured heads of fasteners is undesirable from a quality standpoint. In all cases when gapping occurs, steps shall be taken to eliminate the cause.
   (9) The flushness of the locking collar and spindle of the Huck blind bolt fastener as driven shall be in accordance with Figure 29. Fasteners with either collar or spindle not meeting flushness requirements per Figure 30 shall be replaced.
   (10) Shaving of either the collar and/or the spindle to flush with the head of the fastener is permissible. Shaving of the fastener head is not allowed.

I. Jo-Bolt Blind Bolts (NAS 1669 and NAS 1670)
   (1) The Jo-Bolt used shall be as originally installed.
   (2) Jo-Bolts are supplied lubricated. They shall not be degreased or re-lubricated. They shall be stored away from heat, dirt and grit.
   (3) Dip bolt used in a wet fuel area in Pro-Seal 890 (MIL-S-8802) sealant immediately prior to installation.
   (4) Jo-Bolts shall be installed with tools recommended by the manufacturer. The driving tool shall be held so its axis coincides with the axis of the fastener.
   (5) The end of the bolt at the break-off point shall be touched up with epoxy primer.
   (6) Where possible, the blind side of the installation shall be inspected for properly driven collars. Any crack in a collar is cause for rejection of the fastener. Touch up blind side with Pro-Seal 890 (MIL-S-8802) or Pro-Seal 870 (MIL-S-81733) where possible.

       NOTE: Use Pro-Seal 890 in wet fuel areas only.

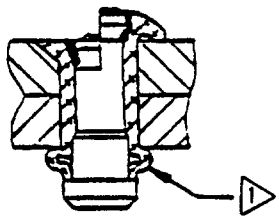
   (7) Gaps which allow the insertion of a 0.004 inch (.1016 mm) feeler gage between the countersunk or protruding head and bearing surface shall not be acceptable when more than 40 percent of the head circumference has the gap.
   (8) Gapping under the manufactured heads of fasteners is undesirable from a quality stand point. In all cases when gapping occurs, steps shall be taken to eliminate the cause.
   (9) The stem breakoff limits for flushness with the skin surface shall be per Figure 30. If stem breakoff is outside of these limits, either the fastener used is out of grip length or it did not drive properly. Stem breakoff higher than the limits will generally indicate a too long fastener and below the limits a too short fastener. In either case, the fastener shall be removed and replaced.



NOMINAL BOLT DIAMETER	AS CLINCHED PROTRUSION OF BLIND HEAD		AS CLINCHED DIAMETER OF BLIND HEAD
	MIN. (Inches)	MAX. (Inches)	
-05 (5/32)	0.120	0.201	Max. dia. as clinched blind head shall not exceed max. dia. of mfg. head.
-06 (3/16)	0.146	0.231	
-08 (1/4)	0.188	0.279	
-10 (5/16)	0.224	0.319	
-12 (3/8)	0.264	0.364	

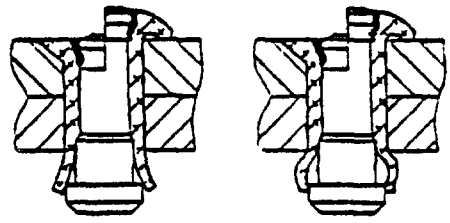
Dimensional Requirements for Clinched Blind Head
Figure 27

(1) Allowable surface fractures or discontinuities in area of formed blind head are as follows:
Longitudinal -0.010 max.
Circumferential -0.005 max.



Acceptable

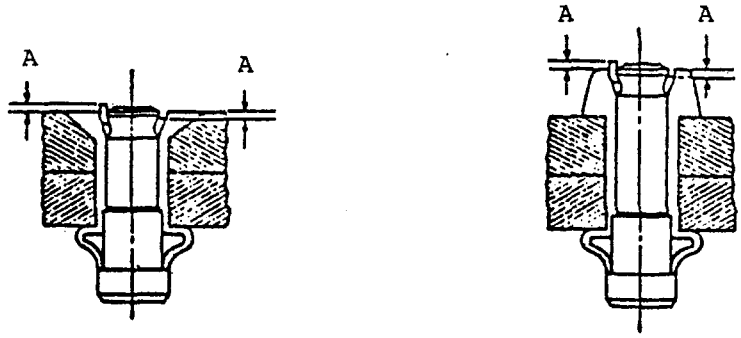
(Providing requirements of figure 29 are met)



Unacceptable

(Anytime the bolt sleeve extrudes out and over the land on the bolt pin)

Blind Head Shapes
Figure 28

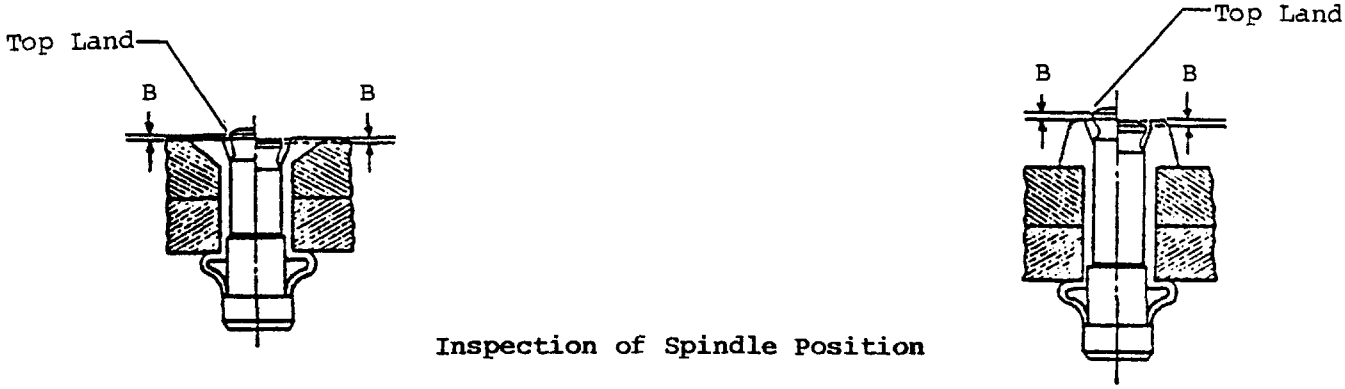


Inspection of Locking Collar Position

A...Maximum allowable distance of locking collar above or below fastener head.

NOMINAL FASTENER DIAMETER	COLLAR POSITION "A" (MAX.) (Inch)	SPINDLE POSITION "B" (MAX.) (Inch)
5/32	0.017	0.010
3/16	0.022	0.012
1/4	0.029	0.015
5/16	0.037	0.019
3/8	0.045	0.023

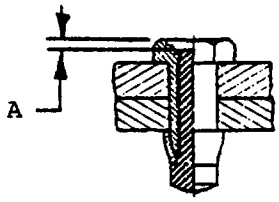
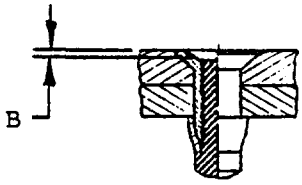
(Same inspection procedure is used for oversize diameter.)



Inspection of Spindle Position

B...Maximum allowable distance of top of land on pin above or below fastener head

Flushness Requirements for Huck Blind Bolt Installation
Figure 29

				
NOM. DIA.	**PART NUMBER**	**"A"**	**PART NUMBER**	**"B"**
0.164	NAS1669-08	+0.000 +0.088	NAS1670-08	+0.010 -0.068
0.200	NAS1669-3	+0.010 +0.098	NAS1670-3	+0.010 -0.073
0.260	NAS1669-4	+0.047 +0.135	NAS1670-4	+0.010 -0.078
0.312	NAS1669-5	+0.043 +0.146	NAS1670-5	+0.010 -0.083
0.375	NAS1669-6	+0.049 +0.152	NAS1670-6	+0.010 -0.093

NOTE: "A" is above skin surface, "B" is below skin surface.

Flushness Specifications for Jo-Bolt Installation
Figure 30

J. Hi-Loks
(1) The Hi-Lok pin and collar used shall be as originally installed except as substituted. (Refer to 51-70-00, Figure 202.)
(2) Collars as received are lubricated. Degreasing or additional lubrication is not allowed.
(3) In inaccessible areas where space or location will not permit the use of specified collars, a nut may be substituted as shown in Table 4.

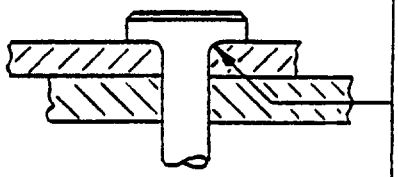
SPECIFIED COLLAR	SUBSTITUTED NUT	INSTL TORQUE (In Lbs)
HL70-5, HL90-5A, HL91-5	MS21042-08	15 - 25
HL72-5, HL86-5	MS21042-08	30 - 40
HL79-6, HL84-6, HL90-6A, HL94-6	MS21042-3	25 - 35
HL72-6, HL86-6, HL87-6, HL87-6W, HL93-6	MS21042-3	40 - 50
HL70-8, HL79-8, HL90-8A, HL94-8	MS21042-4	60 - 80
HL72-8, HL87-8	MS21042-4	115 - 130
HL90-10A, HL94-10, HL86-10	MS21042-5	130 - 160

Table 4

(4) All Hi-Lok Bolts to be used in a wet fuel area shall be coated with Pro-Seal 890 (MIL-S-8802) sealant prior to installation.
(5) Final hole size and countersink for Hi-Loks shall be as specified in Figures 9 and 13.
(6) Hi-Loks shall be installed with tools recommended by the manufacturer.
(7) Washers used for grip adjustment shall be AN960 cadmium plated steel.
(8) When installing a standard Hi-Lok collar, the use of one (1) washer, 0.032 inch (.812 mm) maximum thickness, under the collar is allowable.
(9) When installing the MS21042 substitute nut, with bolt head and all material in "sheared-up" condition, use washers to "cover-up" a minimum of two (2) "imperfect" bolt threads prior to installing the nut. Maximum allowable quantity of washers is two (2) per fastener. Maximum allowable thickness of individual washer(s) is 0.063 inch (1.6 mm).
(10) At all protruding head style bolt locations, prepare the edge of the hole adjacent to the bolt head as shown in Figure 31.
(11) The presence of gaps which allow the insertion of a 0.004 inch (.1016 mm) feeler gage between the countersunk or protruding head and bearing surface, shall not be acceptable when more than 40 percent of the head circumference has the gap.
(12) The pin protrusion after installation shall be within the limits specified in Figure 32.
(13) After assembly, the maximum collar gap allowables are per Table 5.

NOMINAL DIAMETER	COLLAR GAP (Maximum)
5/32	0.003
3/16	0.004
1/4	0.005
5/16	0.006
3/8	0.007
7/16	0.008
1/2	0.009

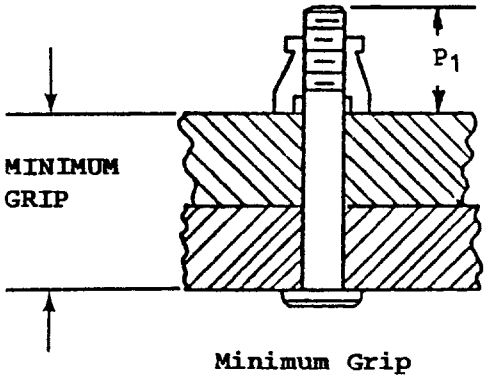
Table 5



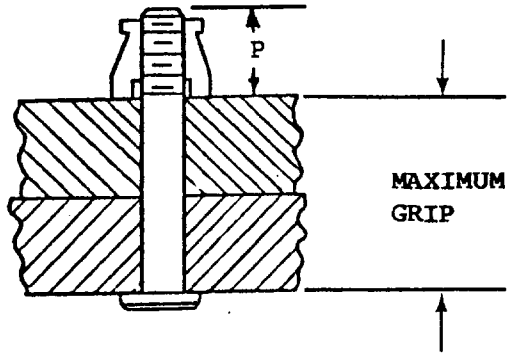
0.010 (±0.005) Radius for pin sizes -5, -6 & -8
(0.010 [±0.005] x 45° [±1°] chamfer optional)

0.015 (±0.005) Radius for pin sizes -10 thru -16
(0.010 [±0.005] x 45° [±1°] chamfer optional)

Hole Edge Preparation Specification for Hi-Lok Installation
Figure 31



Minimum Grip
(Maximum Protrusion)



Maximum Grip
(Minimum Protrusion)

FASTENER		MINIMUM PROTRUSION "P"	MAXIMUM PROTRUSION "P1"
DASH NUMBER	NOMINAL DIAMETER		
-5	5/32	0.302	0.384
-6	3/16	0.315	0.397
-8	1/4	0.385	0.467
-10	5/16	0.490	0.572
-12	3/8	0.535	0.617
-14	7/16	0.625	0.707
-16	1/2	0.675	0.757

Hi-Lok Pin Protrusion Allowables
Figure 32

FASTENER SUBSTITUTION

1. GENERAL
   A. When adapting the typical repairs shown in this manual to suit actual conditions, it may be found necessary to use different fasteners than those originally used. This may be due to nonavailability of a particular fastener, restricted access, or other difficulties not foreseen in the original repair.
   B. Make selection of substitute hardware per figures 1 thru 8.
   C. The ( ) following the fastener part number is used to identify the length, diameter, finish, or other fastener definitions. These identifications must be the same as the original hardware.

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
B100-T Blind Huck Bolt (NAS523 Code = TY)	UB100-T Blind Huck Bolt (NAS523 Code = TY)	Diameter and grip length to be the same
BP-T Blind Huck Bolt (NAS523 Code = TX)	UBP-T Blind Huck Bolt (NAS523 Code = TX)	Diameter and grip length to be the same
MS90353U (NAS523 Code = TY)	UB100-T Blind Huck Bolt (NAS523 Code = TY)	Diameter and grip length to be the same
MS90354U (NAS523 Code = TX)	UBP-T Blind Huck Bolt (NAS523 Code = TX)	Diameter and grip length to be the same
MS90353 (NAS523 Code = TY)	B100-T Blind Huck Bolt (NAS523 Code = TY)	Diameter and grip length to be the same
MS90353 (NAS523 Code = TY)	MS90353U (NAS523 Code = TY)	Diameter and grip length to be the same
MS90354U (NAS523 Code = TX)	BP-T Blind Huck Bolt (NAS523 Code = TX)	Diameter and grip length to be the same
MS90354 (NAS523 Code = TX)	MS90354U (NAS523 Code = TX)	Diameter and grip length to be the same
NAS464P3-( ) NAS464P4-( ) NAS464P5-( ) NAS464P6-( ) NAS464P7-( ) NAS464P8-( )	NAS6203 - ( ) D NAS6204 - ( ) D NAS6205 - ( ) D NAS6206 - ( ) D NAS6207 - ( ) D NAS6208 - ( ) D	

Bolt and Blind Bolt Substitutions
Figure 1 (Sheet 1)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
NAS464P9-( ) NAS464P10-( ) NAS464P12-( ) NAS464P14-( ) NAS464P17-( )	NAS6209 - ( ) D NAS6210 - ( ) D NAS6212 - ( ) D NAS6214 - ( ) D NAS6216 - ( ) D	
NAS 1603-( ) thru NAS 1608-( )	NAS 1603-( )R thru NAS 1608-( )R	Diameter and grip length to be the same
NAS 1703-( ) thru NAS 1708-( )	NAS 1703-( )R thru NAS 1708-( )R	Diameter and grip length to be the same
NAS 1220-( )-( )	HT4005-( )-( )	Diameter and grip
NAS 4703-( ) thru NAS 4716-( )	NAS 4803-( ) thru NAS 4816-( )	Diameter and grip length to be the same
HT4013-3-3	NAS 1581 A3H3	Diameter and grip length to be the same
NAS 1669- ( ) - ( )	NAS 1669- ( ) L ( )	Diameter and grip length to be the same
NAS 1669- ( ) - ( )	NAS 1669- ( ) DL ( )	Diameter and grip length to be the same
NAS 1669- ( ) L ( )	NAS 1669- ( ) DL ( )	Diameter and grip length to be the same
NAS 1669- ( ) DL ( )	NAS 1669- ( ) L ( )	Diameter and grip length to be the same
NAS 1670- ( ) - ( )	NAS 1670- ( ) L ( )	Diameter and grip length to be the same
NAS 1670- ( ) - ( )	NAS 1670- ( ) DL ( )	Diameter and grip length to be the same
NAS 1670 ( ) L ( )	NAS 1669- ( ) DL ( )	Diameter and grip length to be the same
NAS 1670- ( ) DL ( )	NAS 1670- ( ) L ( )	Diameter and grip length to be the same

Bolt and Blind Bolt Substitutions
Figure 1 (Sheet 2)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
HL10 - ( ) - ( ) Pin	HL10( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same Lubricant optional
HL11- ( ) - ( ) Pin	HL11( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same Lubricant optional
HL12-( ) - ( ) Pin	HL12( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same Lubricant optional
HL13 - ( ) - ( ) Pin	HL13( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same Lubricant optional
HL18- ( ) - ( ) Pin	HL18( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same
HL19- ( ) - ( ) Pin	*HL19( ) - ( ) - ( ) Hi-Lok*	*Diameter and grip* length to be the same
HL20- ( ) - ( ) Pin	HL20( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same
HL21- ( ) - ( ) Pin	HL21( ) - ( ) - ( ) Hi-Lok	Diameter and grip length to be the same
HL18- ( ) - ( ) Pin	L805 - ( ) - ( ) AIC Air Industries Corp.	Diameter and grip length to be the same
HL70-( ) Hi-Lok Collar	HL70( ) - ( ) Hi-Lok Collar	Diameter to be the same
HL70-( ) Hi-Lok Collar	HL79-( ) Hi-Lok Collar	Substitutable in same diameter, except -5 diameter
HL72-( ) Hi-Lok Collar	HL86G-( ) Hi-Lok Collar	Diameter to be the same
HL79-( ) Hi-Lok Collar	HL79( ) - ( ) Hi-Lok Collar	Diameter to be the same
HL79-5 Hi-Lok Collar	HL70-5 Hi-Lok Collar	Lubricant optional
HL82-( ) Hi-Lok Collar	HL82-( )A Hi-Lok Collar	
HL86-( ) Hi-Lok Collar	HL86G-( ) Hi-Lok Collar	Lubricant optional
HL87-5 Hi-Lok Collar	HL86-5 Hi-Lok Collar	Lubricant optional
HL90-( )A Hi-Lok Collar	HL90( ) - ( )A Hi-Lok Collar	Diameter to be the same

Hi-Lok Substitutions
Figure 2

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
SL601-( )( )( )( )( ) Shur-Lok Blind Threaded Honeycomb Insert	NAS1832( )( )( )( )( )	Thread size, locking feature, length, material, and finish to be the same
SL602-( )( )( )( )( ) Shur-Lok Through Threaded Honeycomb Insert	NAS1833( )( )( )( )( )	Thread size, locking feature, length, material, and finish to be the same
SL603-( )-( )( ) Shur-Lok Spool Type Honeycomb Insert	NAS1834( )( )-( )	Hole size, length and material to be the same
SL604-( )-( )( ) Shur-Lok CSK Spool Type Honeycomb Insert	NAS1834( )( )K( )	Hole size, length and material to be the same
SL607-( )( )-( )( )( ) Shur-Lok Blind Threaded Honeycomb Insert	NAS1836( )( )( )( )( )( )	Thread size, locking feature, length, material and finish to be the same
NAS1832( )( )( )( )( )	SL601-( )( )( )( )( )	Thread size, locking feature, length, material, and finish to be the same
NAS1833( )( )( )( )( )	SL602-( )( )( )( )( )	Thread size, locking feature, length, material, and finish to be the same
NAS1834( )( )-( )	SL603-( )-( )( )	Thread size, locking feature, length, material, and finish to be the same
NAS1834( )( )K( )	SL604-( )-( )( )	Thread size, locking feature, length, material, and finish to be the same
NAS1836( )( )( )( )( )( )	SL607-( )( )-( )( )( )	Thread size, locking feature, length, material, and finish to be the same

Honeycomb Insert Substitutions
Figure 3

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
AN320 - ( )	MS14145 - ( )	Size to be the same
AN320 - ( )	MS14145L - ( )	Size to be the same
AN340 - ( )	MS35649 - ( )	Material & size to be same
AN345 - ( )	MS35650 - ( )	Material & size to be same
AN364 - ( ) C	MS21042 - ( )	
AN364 - ( ) D	MS21083D ( )	
MS20341- ( )	MS35649 - ( )	Material & size to be same
MS20341- ( )	MS35650 - ( )	Material & size to be same
AN364D ( )	MS21083D ( )	
MS20341 ( )	MS35649 - ( )	Material & size to be same
MS20341- ( )	MS35650 - ( )	Material & size to be same
MS20364 - ( )	MS21042 - ( )	Size to be the same
MS20364 - ( )	MS21083N ( )	Size to be the same
MS20364 - ( ) A	MS21083N ( )	Size to be the same
MS20364 - ( ) C	MS21042 - ( )	Size to be the same
MS20364D - ( )	MS21083D ( )	Size to be the same
MS20365 - ( )	MS21042 - ( )	Size to be the same

Nut Substitutions
Figure 4 (Sheet 1)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
MS20365 - ( )	MS21044N ( )	Size to be the same
MS20365 - ( ) A	MS21044N ( )	Size to be the same
MS20365 - ( ) C	MS21042 - ( )	Size to be the same
MS20365B - ( )	MS21044B ( )	Size to be the same
MS20365D - ( )	MS21044D ( )	Size to be the same
MS210244N - ( )	MS21042 - ( )	Size to be the same
MS21045 - ( ) or L ( )	MS21042 - ( )	Size to be the same
MS21083N ( )	MS21042 - ( )	Size to be the same
MS35650-3395	MS35650-3395T	Size to be the same
NAS395 - ( ) - 1	NAS395 - ( ) - 3	Size to be the same
NAS396 - ( ) - 1	NAS396 - ( ) - 3	Size to be the same
NAS679 - ( )	MS21042 - ( )	Size to be the same

Nut Substitutions
Figure 4 (Sheet 2)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
MS21047	NAS 680	Material & size to be the same
MS21049	NAS 681	Material & size to be the same
MS21051	NAS 682	Material & size to be the same
MS21053	NAS 683	Material & size to be the same
MS21055	NAS 684	Material & size to be the same
MS21057	NAS 685	Material & size to be the same
MS21059	NAS 686	Material & size to be the same
MS21061	NAS 687	Material & size to be the same
MS21062	NAS 687	Material & size to be the same
MS21069	NAS 697	Material & size to be the same
MS21071	NAS 696	Material & size to be the same
MS21073	NAS 698	Material & size to be the same
MS21075	NAS 1068	Material & size to be the same
MS21086	NAS 1067	Material & size to be the same
NAS680A ( )	MS21047L ( )	
NAS680C ( )	MS21048 - ( )	
NAS680C ( ) M	MS21048L ( )	
NAS680C ( ) MK	MS21048L ( ) K	
NAS680X ( )	MS21047 - ( )	
NAS681A ( )	MS21049L ( )	
NAS681C ( )	MS21050 - ( )	
NAS681C ( ) M	MS21050L ( )	
NAS681C ( ) MK	MS21050L ( ) K	
NAS681X ( )	MS21049 - ( )	

Nutplate Substitutions
Figure 5 (Sheet 1)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
NAS682A ( )	MS21051L ( )	
NAS682C ( )	MS21052 - ( )	
NAS682C ( ) M	MS21052L ( )	
NAS682C ( ) MK	MS21052L ( ) K	
NAS682X ( )	MS21051 - ( )	
NAS683A ( )	MS21053L ( )	
NAS683C ( )	MS21054 - ( )	
NAS683C ( ) M	MS21054L ( )	
NAS683C ( ) MK	MS21054L ( ) K	
NAS683X ( )	MS21053 - ( )	
NAS684A ( )	MS21055L ( )	
NAS684C ( )	MS21056 - ( )	
NAS684C ( ) M	MS21056L ( )	
NAS684C ( ) MK	MS21056L ( ) K	
NAS684X ( )	MS21055 - ( )	
NAS685A ( )	MS21057L ( )	
NAS685C ( )	MS21058 - ( )	
NAS685C ( ) M	MS21058L ( )	
NAS685C ( ) MK	MS21058L ( ) K	
NAS685X ( )	MS21059 - ( )	
NAS686A ( )	MS21060L ( )	
NAS686C ( )	MS21060 - ( )	
NAS686C ( ) M	MS21060L ( )	

Nutplate Substitutions
Figure 5 (Sheet 2)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
NAS6866C ( ) MK	MS21060L ( ) K	
NAS686X ( )	MS21059 - ( )	
NAS687A ( )	MS21061L ( )	
NAS687C ( )	MS21062 - ( )	
NAS687C ( ) M	MS21062L ( )	
NAS687C ( ) MK	MS21062L ( ) K	
NAS687X ( )	MS21061 - ( )	
NAS696A ( )	MS21071L ( )	
NAS696C ( )	MS21072 - ( )	
NAS696C ( ) M	MS21072L ( )	
NAS696C ( ) MK	MS21072L ( ) K	
NAS696X ( )	MS21071 - ( )	
NAS697A ( )	MS21069L ( )	
NAS697C ( )	MS21070 - ( )	
NAS697C ( ) M	MS21070L ( )	
NAS697X ( )	MS21069 - ( )	
NAS698A ( )	MS21073L ( )	
NAS698C ( )	MS21074 - ( )	
NAS698C ( ) M	MS21074L ( )	
NAS698C ( ) MK	MS21074L ( ) K	
NAS698X ( )	MS21073 - ( )	

Nutplate Substitutions
Figure 5 (Sheet 3)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
NAS1067A ( )	MS21086L ( )	
NAS1067C ( )	MS21087 - ( )	
NAS1067C ( ) M	MS21087L ( )	
NAS1067C ( ) MK	MS21087L ( ) K	
NAS1067X ( )	MS21086 - ( )	
NAS1068A ( )	MS21075L ( )	
NAS1068C ( )	MS21076 - ( )	
NAS1068C ( ) M	MS21076L ( )	
NAS1068X ( )	MS21075 - ( )	
LHA228- ( )	MF6001- ( )	Size to be the same
LHA27M2860- ( )	MF6331- ( )	Size to be the same
22LHA27M22- ( )	MF6300- ( )	Size to be the same ("F" or "RM" prefix optional)
52LHA227- ( )	MF6000- ( )	Size to be the same ("RM" prefix optional)
MF6000- ( )	RM52LHA227- ( )	Size to be the same
MF6001- ( )	LHA228- ( )	Size to be the same
MF6300- ( )	22LHA27M22- ( )	Size to be the same
MF6331- ( )	LHA27M2860- ( )	Size to be the same
M14600 - ( )	M14700E - ( )	450°F Max
M14600H - ( )	M14700HE - ( )	450°F Max
M14610 - ( )	M14710E - ( )	450°F Max
M14610H - ( )	M14710HE - ( )	450°F Max
M14620 - ( )	M14720E - ( )	450°F Max
M14620H - ( )	M14720HE - ( )	450°F Max

Nutplate Substitutions
Figure 5 (Sheet 4)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
M14635H- ( )	M14735HE - ( )	450°F Max
M14600H - ( )	M14700HE - ( )	450°F Max
M14640 - ( )	M14740E - ( )	450°F Max
M14640H - ( )	M14740HE - ( )	450°F Max
M14700 - ( )	M14700E - ( )	450°F Max
M14740 - ( )	M14740E - ( )	450°F Max
14600 - ( )	M14700E - ( )	450°F Max
14600H - ( )	4600H - ( )	Thread size to be the same (approx. 3x weight penalty)
14600H - ( )	14700HE - ( )	450°F Max
14610H - ( )	14710HE - ( )	450°F Max
14620H - ( )	14720HE - ( )	450°F Max
14650H - ( )	14750H - ( ) E	
4600 - ( )	470E - ( )	450°F Max
4600H ( )	4700HE - ( )	450°F Max

Nutplate Substitutions
Figure 5 (Sheet 5)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
Avdel 1204 - ( ) ( )	CR2662 Widedraw Cherrylock (NAS 523 Code = RS)	Diameter and length to be the same
CR2164 Cherrylock (NAS523 CODE = ADD)	CR3214 Cherrymax (NAS523 CODE = ASK)	Diameter and grip length to be the same
CR2245 Bulbed Cherrylock (NAS523 CODE = ACH)	CR3245 Cherrymax (NAS523 CODE = ATK)	Diameter and grip length to be the same
CR2248 Bulbed Cherrylock (NAS523 CODE = PV)	CR3242 Cherrymax (NAS523 CODE = ARD)	Diameter and grip length to be the same
CR2249 Bulbed Cherrylock (NAS523 CODE = PZ)	CR3243 Cherrymax	Diameter and grip length to be the same
CR2662 (NAS523 CODE = ARD)	CR4622 Wiredraw Cherrymax (NAS523 CODE = ACX)	Diameter and grip length to be the same
CR3242 Cherrymax (NAS523 CODE = ARD)	CR3252 Cherrymax (NAS523 CODE = ARO) (BAC R15FP ( ) E ( )	Diameter and grip length to be the same
CR3243 Cherrymax	CR2249 Bulbed Cherrylock	Diameter and grip length to be the same
NAS1398B (NAS523 CODE = RK)	CR2263 Wiredraw Cherrylock (NAS523 CODE = RK)	Diameter and grip length to be the same
NAS1398D (NAS523 CODE = RL)	CR2163 Wiredraw Cherrylock (NAS523 CODE = PW)	Diameter and grip length to be the same
NAS1399C (NAS523 CODE = RS)	CR2662 Wiredraw Cherrylock (NAS523 CODE = RS)	Diameter and grip length to be the same
NAS1399D (NAS523 CODE = RP)	CR2162 Wiredraw Cherrylock (NAS523 CODE = PR)	Diameter and grip length to be the same
NAS1738B (NAS523 CODE = AAO)	CR2249 Bulbed Cherrylock (NAS523 CODE = AAO)	Diameter and grip length to be the same
NAS1739B (NAS523 CODE = AAT)	CR2248 Bulbed Cherrylock (NAS523 CODE = PV)	Diameter and grip length to be the same
NAS1738B (NAS523 CODE = AAO)	CR2249 Bulbed Cherrylock (NAS523 CODE = ARE)	Diameter and grip length to be the same
NAS1739B (NAS523 CODE = AAT)	CR2248 Bulbed Cherrylock (NAS523 CODE = ARD)	Diameter and grip length to be the same

Rivet and Blind Rivet Substitutions
Figure 6

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
AN507 - ( ) R ( )	MS24693 - S ( )	Size and length to be the same
AN507B - ( ) R ( )	MS24693 - BB ( )	Size and length to be the same
AN507C - ( ) R ( )	MS24693 - C ( )	Size and length to be the same
AN507DD - ( ) R ( )	MS24693 - A ( )	Size and length to be the same
AN507PB - ( ) R ( )	MS24693 - CB ( )	Size and length to be the same
AN507UB - ( ) R ( )	MS24693 - B ( )	Size and length to be the same
AN509 - ( ) - ( )	AN509 - ( ) R ( )	Size and length to be the same
AN509 - ( ) R ( )	MS24694 - S ( )	Size and length to be the same
AN509C - ( ) R ( )	MS24694 - C ( )	Size and length to be the same
AN509DD - ( ) R ( )	MS24694 - A ( )	Size and length to be the same
AN515 - ( ) - ( )	MS35206 - ( )	Size and length to be the same
AN515 - ( ) R ( )	MS35206 - ( )	Size and length to be the same
AN515B - ( ) R ( )	MS35214 - ( )	Size and length to be the same
AN515C - ( ) R ( )	MS51957 - ( )	Size and length to be the same
AN515DD - ( ) R ( )	MS35218 - ( )	Size and length to be the same
AN520 - ( ) R ( )	MS35207 - ( )	Size and length to be the same
AN520B - ( ) R ( )	MS35215 - ( )	Size and length to be the same
AN520C - ( ) R ( )	MS51958 - ( )	Size and length to be the same
AN520DD - ( ) R ( )	MS35219 - ( )	Size and length to be the same
AN 530- ( ) RF ( )	AN 530- ( ) R ( )	Size and length to be the same
MS24693 - ( )	AN 507 - ( )	Material, finish, diameter and length to be the same
MS24694 - ( )	AN 509 - ( ) R ( )	Material, finish, diameter and grip length to be the same

Screw Substitutions
Figure 7 (Sheet 1)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
MS27039 - ( )	NAS 220 - ( ) thru NAS 226 - ( )	Material, finish, diameter and grip length to be the same
MS35206 - ( )	AN 515 - ( ) R ( )	Diameter and length to be the, same
MS35207 - ( )	AN 520 - ( ) R ( )	Diameter and length to be the, same
MS35214 - ( )	AN 515B ( ) R ( )	Diameter and length to be the, same
MS35215 - ( )	AN 520B ( ) R ( )	Diameter and length to be the, same
MS51957 - ( )	AN 515C ( ) R ( )	Diameter and length to be the, same
MS51958 - ( )	AN 520C ( ) R ( )	Diameter and length to be the, same
NAS220 - ( ) thru NAS226 - ( )	MS27039 ( ) - ( )	Diameter, grip length, and material to be the same
NAS8702 ( )	NAS8702U ( )	Grip length to be the same
NAS8703 ( )	NAS8703U ( )	Grip length to be the same
AOL4200 - ( ) - ( )	NAS1221 - ( ) E ( )	Material, diameter and grip length to be the same
FAS4200 - ( ) - ( )	NAS1221 - ( ) E ( )	Material, diameter and grip length to be the same

Screw Substitutions
Figure 7 (Sheet 2)

SPECIFIED HARDWARE	SUBSTITUTE HARDWARE	RESTRICTIONS
AN935 - ( )	MS35338 - ( )	Material & size to be the same
AN936 - ( )	MS35333 - ( )	Material & size to be the same
AN960D- ( )	AN960JD- ( )	Size and thickness to be the same
AN960PD- ( )	AN960JD- ( )	Size and thickness to be the same
MS35333	AN936A - ( )	Material & size to be the same
MS35335	AN936B - ( )	Material & size to be the same
MS35338	AN935 - ( )	Material & size to be the same

Washer Substitutions
Figure 8

COUNTERSINKING

1. GENERAL

A. For all-around purposes, the micro-stop countersink, fitted with a removable cutter, has been proved the most efficient countersinking tool for use with portable equipment.

B. The shaft of the micro-stop countersinking tool rotates on a bearing inside an adjustable locking sleeve and foot piece assembly. The foot piece (or stop, as it is often called) threads onto the shaft bearing, enabling depth adjustments to be made.

C. Markings, indicating depth differentials in 0.001-inch increments, surround the bevelled circumference of the locking sleeve to aid in depth adjustments.

D. The adjustment is made by pulling the sleeve back and turning the stop to deepen or to shallow the cut. The sleeve is then dropped back into its original position to effect a lock.

NOTE: Ensure that the locking splines intermesh; only then is the adjustment securely locked.

E. The stop countersink may be adjusted or set up on the part to be countersunk provided the following precautions are taken:
   (1) Ensure that the adjustable foot piece is extended far enough that the cut will not be too deep.
   (2) Gradually increase the depth adjustment until the depth and diameter of the hole are the same as the size of the fastener head.
   (3) If at all doubtful of the accuracy of the adjustment, try the countersink on a piece of scrap sheet stock before using.

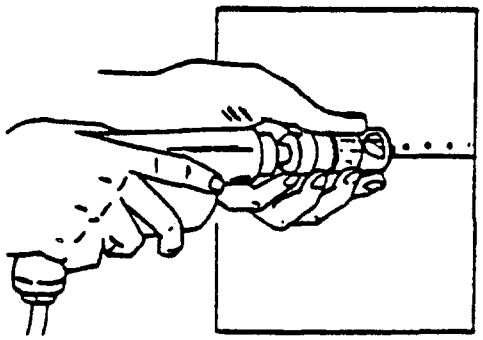
F. The pilot pin guides the spinning cutter as it cuts into the material. The pilot pin should be approximately 0.002 inch less in diameter than the fastener hole. This allows the cutter to spin without binding in the hole. Cutter-pilots which are more than 0.002 inch smaller than the hole size will allow the cutter to wobble, resulting in a lop-sided countersink.

G. Cutters are available in a variety of cutting angles. 100-degree cutters are most frequently used. The cutting angle is stamped on each cutter as shown in Figure 1.

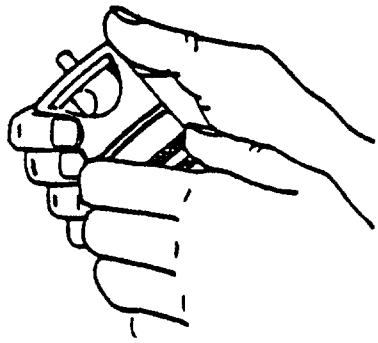
CAUTION: ENSURE THAT THE CUTTER IS TIGHTENED IN THE COUNTERSINK SHAFT BEFORE USING THE STOP COUNTERSINK.

H. When the stop countersinking tool is used, it should be held as shown in Figure 1.

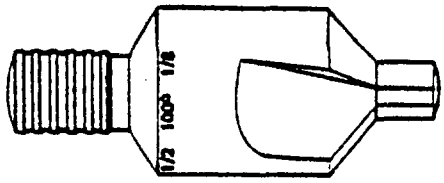
I. Keep the following rules in mind when using the stop countersink:
   (1) Before using, check countersink cutter for pilot size, sharpness, degrees of cutter, and true running.
   (2) Back up the countersink to a safe depth of cut, then gradually increase depth to proper setting.
   (3) Hold countersink at a 90-degree angle to material.
   (4) Take full depth of cut each time.
   (5) Apply pressure directly behind countersink.
   (6) Face on the stop countersink must be highly polished to prevent marring the material.
   (7) Select the size and length fastener to be installed and use it to judge depth of countersink.
   (8) Do not allow the stop to spin on the material.



Holding of Microstop
Countersink Tool



Adjusting of Microstop
Countersink Tool



Countersink Cutter

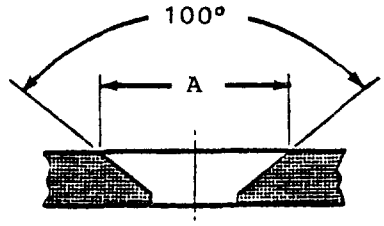
Micro-Stop Countersink
Figure 1

NOTE:

Countersink dimensions in the table are given in terms of the maximum diameter, because this is the most significant dimension in order to avoid too deep a countersink which may produce a knife-edge condition in the riveted material.

Minimum countersink diameters are determined by the aerodynamic flushness requirements.

In actual practice, the proper depth of the countersink is determined by driving a test rivet in a scrap piece of metal. The depth adjustment of the micro-stop countersink tool is gradually increased until a countersink depth is obtained that provides the required flushness of a driven rivet. Once the proper countersink adjustment has been established in this manner, the tool can be used for countersinking on the actual job.



RIVET DIAMETER	MAXIMUM COUNTERSINK DIAMETER "A"
1/8	0.200
5/32	0.250
3/16	0.305
1/4	0.405

Maximum Countersink Diameter for Shear Head Rivets
Figure 2

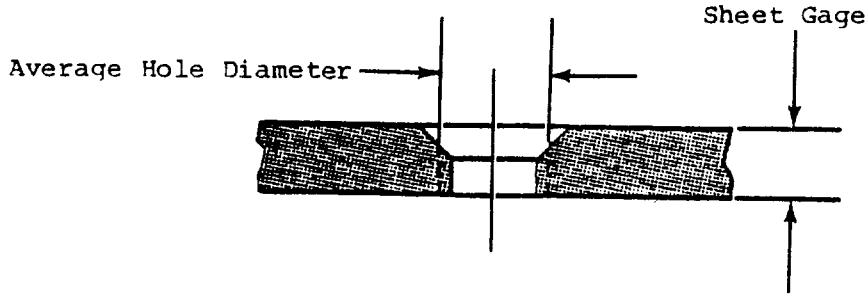
Rivet or Screw Size	COUNTERSINKING		DIMPLING MAXIMUM TOTAL SHEET THICKNESS FOR DIMPLING WITH STATIONARY SQUEEZERS			
				COIN DIMPLING		
				Minimum Thickness	Maximum Thickness	
	Minimum Surface Sheet Thickness For Csk	Minimum Joint Thickness for Sub-CSK When Outer Sheet Is Dimpled	Conventional Dimpling	1 or 2 Sheets	Single Sheet	Two Sheets
RIVETS						
3/32	0.032*	0.050	0.040	0.020	0.050	0.063
1/8	0.040	0.063	0.050	0.020	0.063	0.063
5/32	0.050	0.071	0.063	0.020	0.071	0.071
3/16	0.063	0.080	0.071	0.025	0.071	0.071
1/4	0.071	0.112	0.063	0.032	0.071	0.080
SCREWS						
5-32	0.050	0.076	0.050	0.020	0.050	0.063
8-32	0.050	0.084	0.063	0.020	0.071	0.071
10-32	0.063	0.095	0.071	0.032	0.071	0.071
1/4-28	0.071	0.121	0.063	0.032	0.071	0.080
5/16-24	0.071	0.147	–	–	–	–

* 0.025 minimum sheet thickness may be countersunk for 3/32 rivets for attachment of skins as well as nutplates when specified by repairs within this manual.

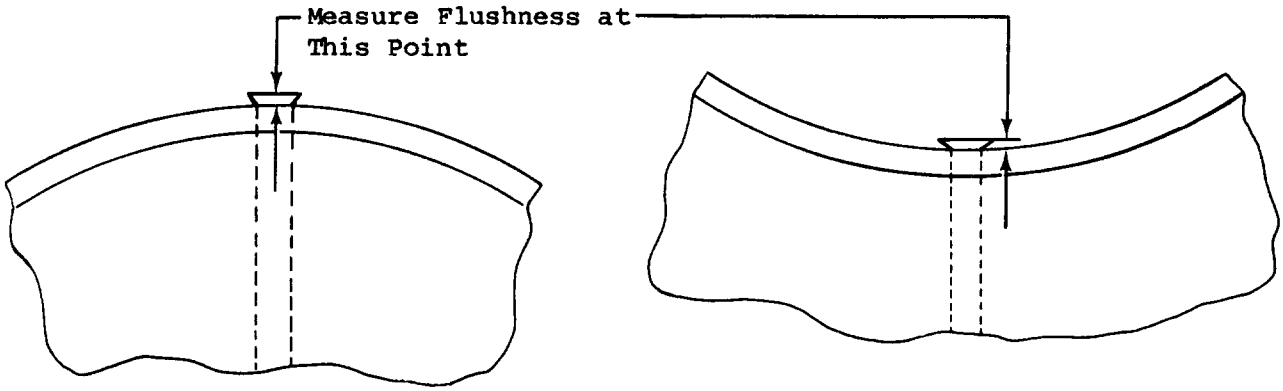
Maximum and Minimum Requirements for Countersinking and Dimpling for Flush Rivets and Screws
Figure 3

SHEET GAGE	MS20426 RIVET DIAMETER					
	1/8	5/32	3/16	1/4	5/16	3/8
0.040	0.181	0.242	0.309	0.432	0.520	0.650
0.045	0.175	0.236	0.303	0.426	0.514	0.644
0.050	0.170	0.230	0.297	0.420	0.508	0.638
0.056	0.166	0.223	0.290	0.413	0.501	0.631
0.063	0.161	0.216	0.282	0.405	0.493	0.623
0.071	0.158	0.210	0.272	0.395	0.483	0.613
0.080	0.154	0.204	0.263	0.385	0.473	0.603
0.090	0.151	0.199	0.254	0.373	0.461	0.591
0.100	0.149	0.195	0.248	0.361	0.449	0.579
0.112	0.147	0.191	0.242	0.349	0.435	0.565
0.125	0.145	0.188	0.236	0.339	0.422	0.549
0.140	0.143	0.185	0.231	0.330	0.411	0.531
0.160	0.141	0.182	0.226	0.320	0.399	0.512
0.180	0.140	0.179	0.222	0.313	0.389	0.497
0.190	0.139	0.178	0.221	0.310	0.386	0.491
0.200	0.138	0.177	0.219	0.307	0.382	0.485
0.224	0.137	0.175	0.216	0.301	0.375	0.474
0.250	0.136	0.173	0.213	0.296	0.369	0.464

HEAD FLUSH WITH SURFACE



Average Hole Diameter of Countersunk Holes
Figure 4



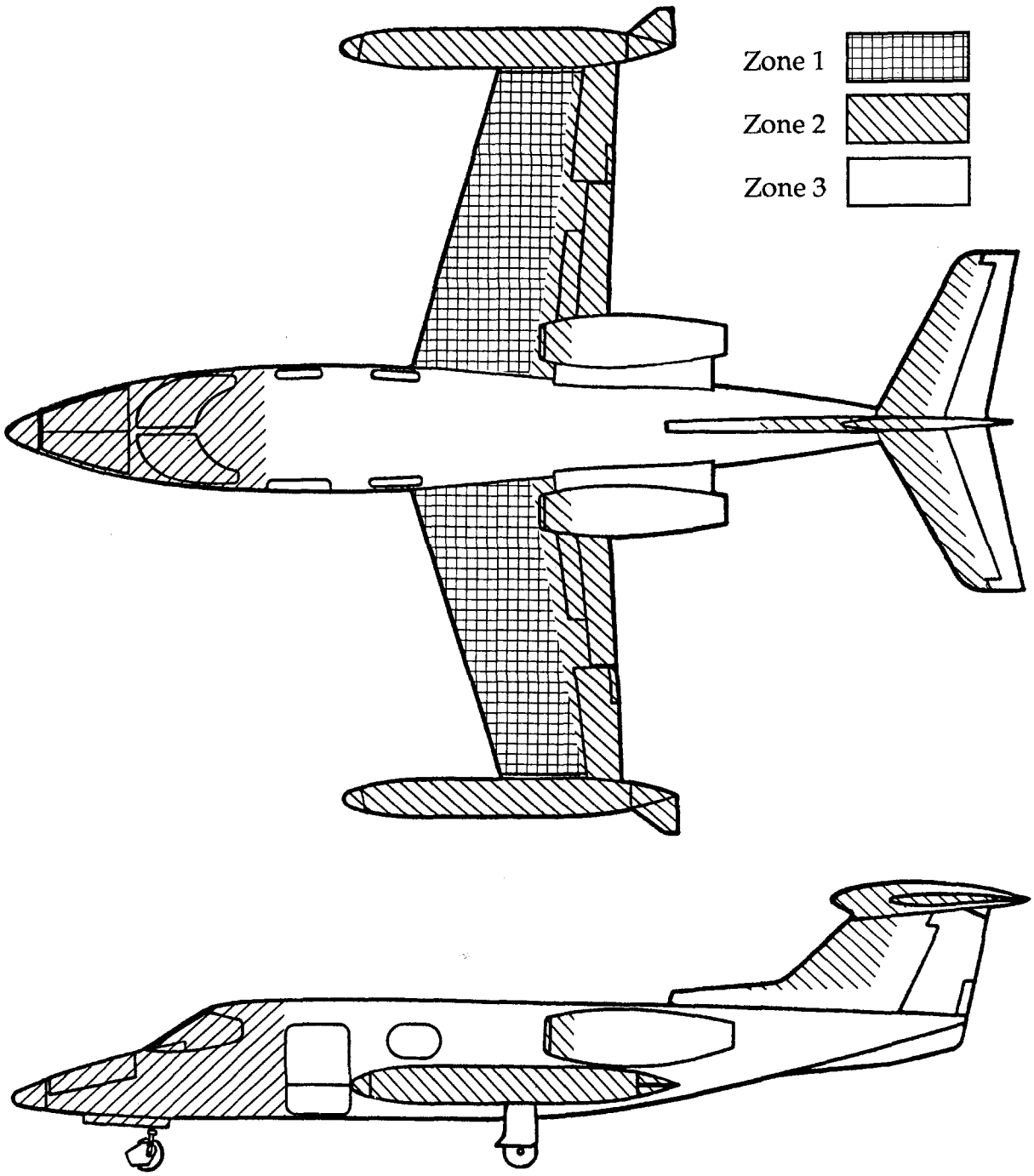
NOTE:
- Tolerance limits for the lower portions of the wing, fuselage, and tail surfaces are the same as the corresponding upper surfaces. Inside nacelle to aft edge of stainless steel nose cup is Zone 1. The interior of the inlet duct is Zone 2.
- Rivets or screw heads protruding above the surface are considered (+) positive. Rivets or screw heads below the surface are considered (-) negative.
- Flushness on sharp contours shall be measured as shown:

The heads of flush rivets, screws, and Hi-Loks on the exterior of the aircraft shall be flush with the local skin contour to within the following tolerances:

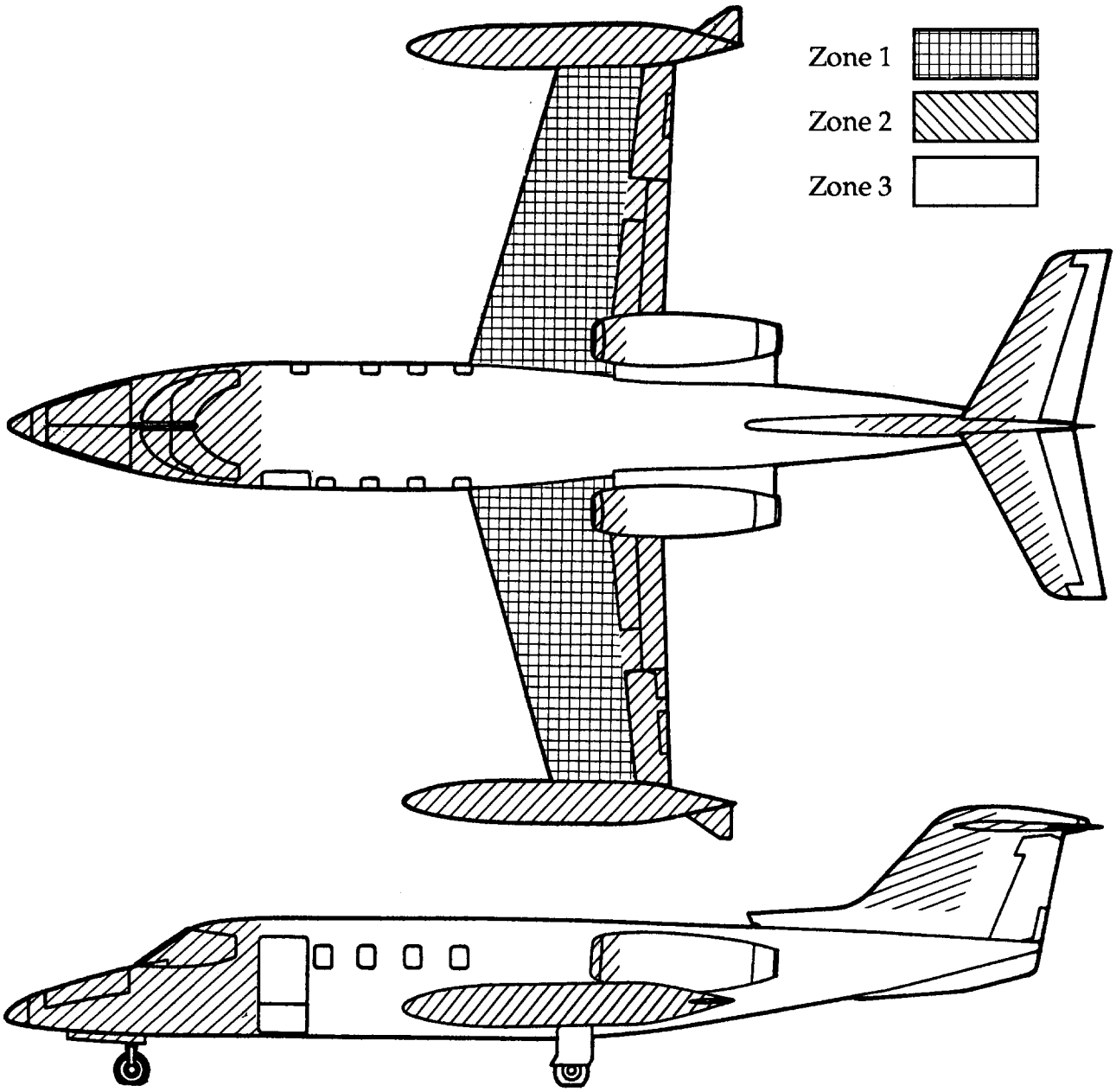
ZONE	DRIVEN RIVETS	BLIND RIVETS, SCREWS & HI-LOKS	CAMLOKS
1	+0.001 -0.000	+0.002 -0.005	– –
2	+0.005 -0.000	+0.002 -0.005	+0.005 -0.010
3	+0.005 -0.000	+0.005 -0.005	+0.010 -0.020

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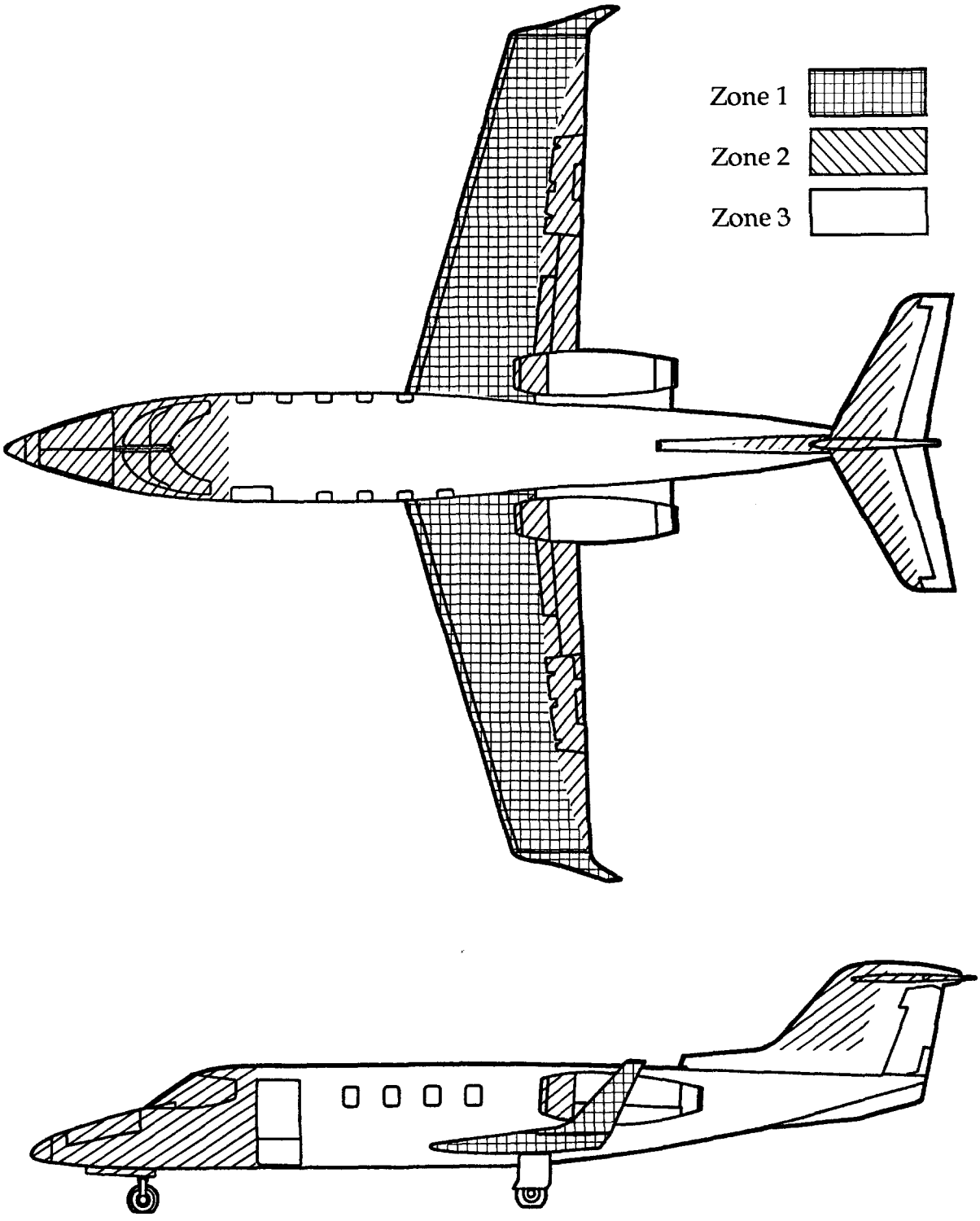
Flushness Requirements and Tolerances
Figure 5 (Sheet 1 of 6)



Flushness Requirements and Tolerances
Figure 5 (Sheet 2 of 6)

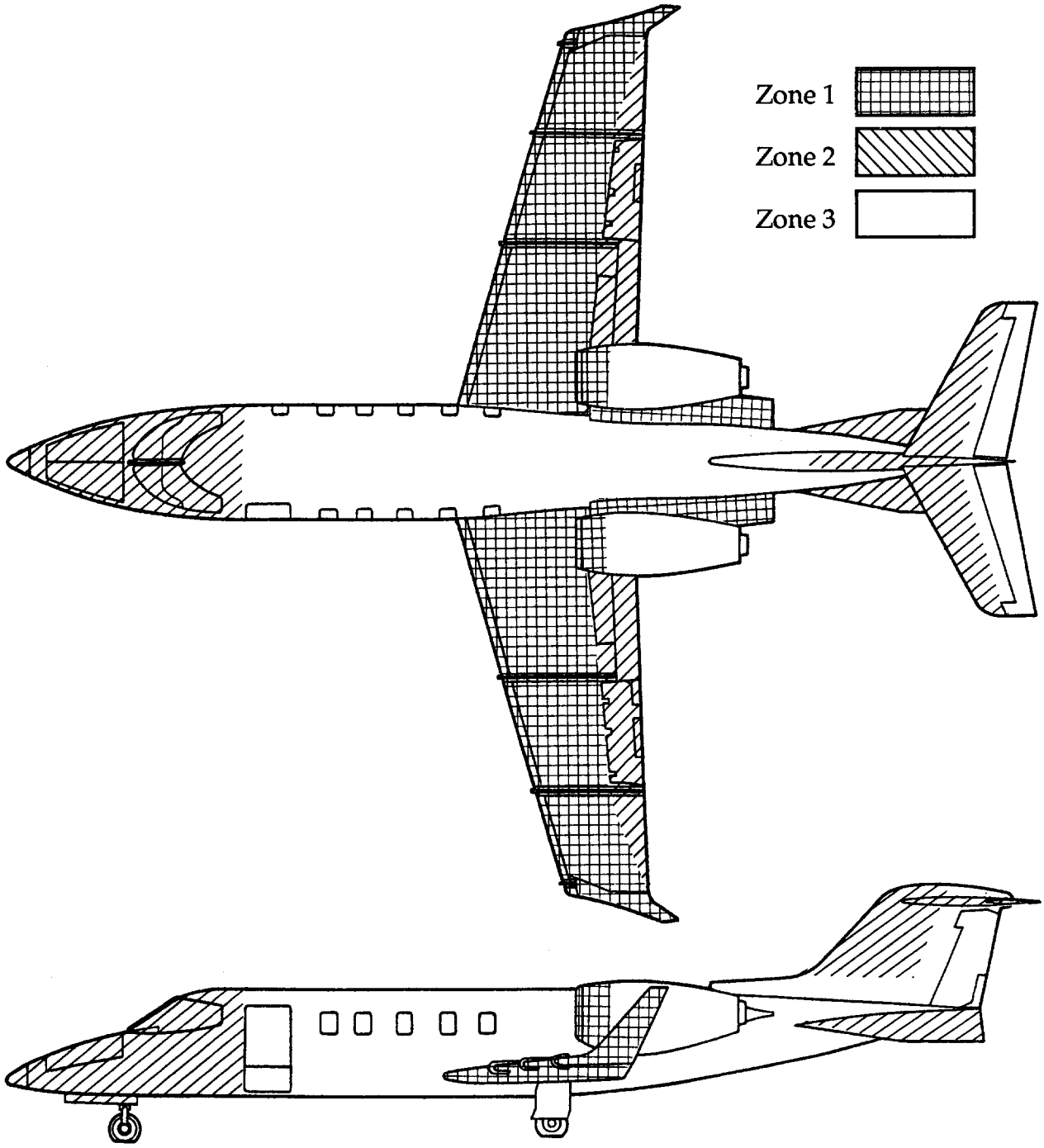


Flushness Requirements and Tolerances
Figure 5 (Sheet 3 of 6)



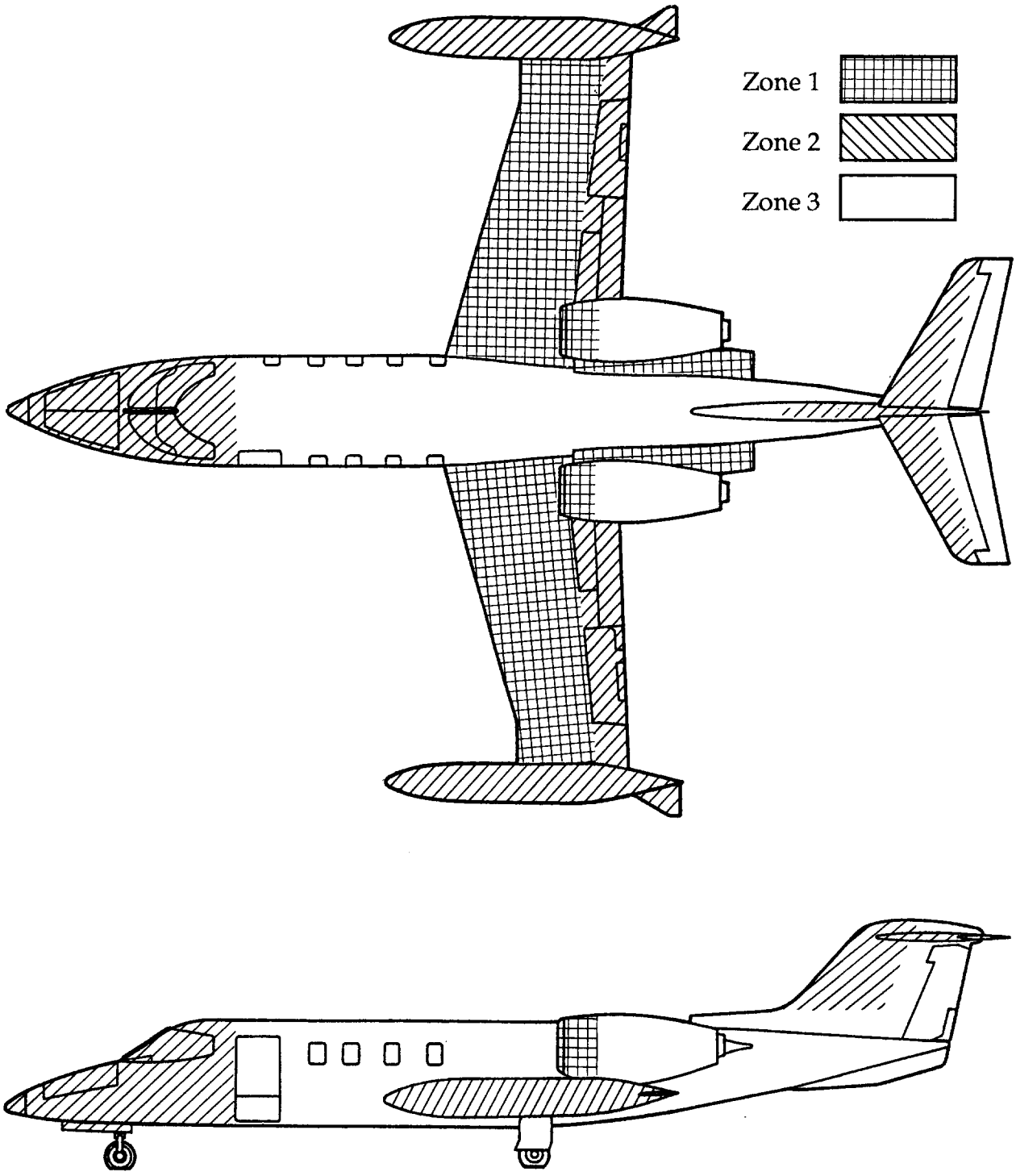
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Flushness Requirements and Tolerances
Figure 5 (Sheet 4 of 6)



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Flushness Requirements and Tolerances
Figure 5 (Sheet 5 of 6)



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Flushness Requirements and Tolerances
Figure 5 (Sheet 6 of 6)

AIRCRAFT SUPPORT FOR ALIGNMENT AND REPAIR - STRUCTURAL IDENTIFICATION

1. **ALIGNMENT AND SYMMETRY INSPECTION** (See Figure 1.)
   A. Tools and Equipment

      NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Scale, 24-inch Machinist type with an adapter and level bubble		Commercially available	Required for point AR
Scale, 48-inch Machinist type with an adapter and level bubble		Commercially available	Required for points 3L, 3R, 5L, 6L, 5R, and 6R
Contour Boards	6226 Parts 1 thru 4 2420000 (Wing) 12126 Parts 1 thru 4 2332000-1 (Tail)		Check wing and horizontal stabilizer contour
Clinometer	2471004		Check angle of incidence
Steel Tape, 25 foot Lightweight Steel Tape		Commercially available	Measure from points 3LU to 9L, 3RU to 9R, and distance between landing gear
Plumb Bob		Commercially available	Marking locations
Transit		Commercially available	Elevation readings
Spirit Level		Commercially available	Preliminary leveling

B. The aircraft alignment data can be of value in locating deformed structure after a hard landing or severe turbulence and/or maneuvers. It should not, however, be considered a criterion for determining structural integrity. In some instances, field checks indicate that an aircraft is out of the tolerances presented, but experience shows that the aircraft may be aerodynamically acceptable because its flying qualities, performance, and handling characteristics meet established criteria.

C. A thorough and searching inspection should be made of the airframe, with particular attention given to fittings where heavy weight masses are carried. A sampling of fasteners may be removed to be examined for evidence of shear and tension deformation. Buckling of stressed skins, which did not exist before the hard landing or high-G maneuver, is cause for careful inspection of the substructure and of the pressurized skins for crack propagation. Skin buckling in itself is not necessarily detrimental structurally if the buckles do not cross a row of rivets and have not loosened any rivets. When adequate inspection reveals the structure to be sound and functional checks of the controls and landing gear (after hard landings) are normal, a check flight will be made.

D. If the results of the structural inspection and flight test are satisfactory, the aircraft is acceptable for flight status. If flight tests indicate the aircraft is either laterally or directionally out of tolerances, and cannot be corrected by rerigging (within the tolerances given in the applicable maintenance manual), a complete alignment check should be made, and results of the alignment check and the flight test should be forwarded to Learjet Field Service for evaluation.

2. SURFACE ALIGNMENT INSPECTION

A. Geometry Check

(1) The geometry check as illustrated in Figure 1 can be made with the aircraft resting on the ground. All measurements are taken from the points illustrated with a steel tape.

B. Elevation Check

(1) To satisfactorily perform an elevation check, the aircraft must be drained of all fuel. To ensure that correct readings are obtained, an engineer's level or transit must be used. Preliminary leveling with a spirit level may precede the actual leveling of the aircraft with a transit to place the aircraft in an approximately level position.

3. LEVEL AND ELEVATION INSPECTION PROCEDURES

A. Alignment and Symmetry Inspection – *Model 23/24 Series Aircraft*

NOTE:
- Personnel must not be permitted on or in the aircraft while the alignment inspection is in progress.
- Aircraft shall be parked inside hangar and hangar doors shall be closed during this inspection.

(1) Level aircraft laterally, longitudinally, and check aircraft elevation, as follows:
   (a) Defuel aircraft. (Refer to Section I in the appropriate Learjet Service Manual for defueling instructions.)
   (b) Place aircraft on jacks with landing gear fully extended and clear of hangar floor. Aircraft door shall be closed. (Refer to Section I in the appropriate Learjet Service Manual for jacking procedures.)
   (c) Perform preliminary aircraft leveling as follows:
      1) Level laterally by placing level across inboard seat rails. Place level on top surface of one of the inboard seat rails to obtain longitudinal leveling. Adjust jacks to level.
   (d) Perform final aircraft leveling as follows:
      1) Position transit, mounted on a tripod (approximately 24 inches high), at the right aft side of aircraft as required to shoot all check points.
      2) Shoot lateral leveling points 3L and 3R. Place adapter point in screw heads when holding scale at these locations.
      3) Insert phillips head screwdriver through scale adapter and hold in screw head at frame 28.
      4) Shoot longitudinal leveling point BR.
      5) Remove radome cover and insert scale adapter through right tooling hole in frame 1.
      6) Shoot longitudinal level point AR.

NOTE: The following is an example for leveling an aircraft.

1	Frame Number	28	1
2	*Reference Point	---	23.96
3	Scale Reading	35.46	+11.00
4	2 + 3	35.46	34.96
5	Δ 4	0.50	0.50

EXAMPLE: Since frame 28 measurement is 35.46 and is larger than frame 1 measurement at 34.96, the forward end of the aircraft (frame 1) is 0.50 too low. Adjust nose jack as required for level condition.

* Reference point 23.96 is the distance between WL 13.039 (frame 1 tooling hole) and WL 37.00 (frame 28 screw head).

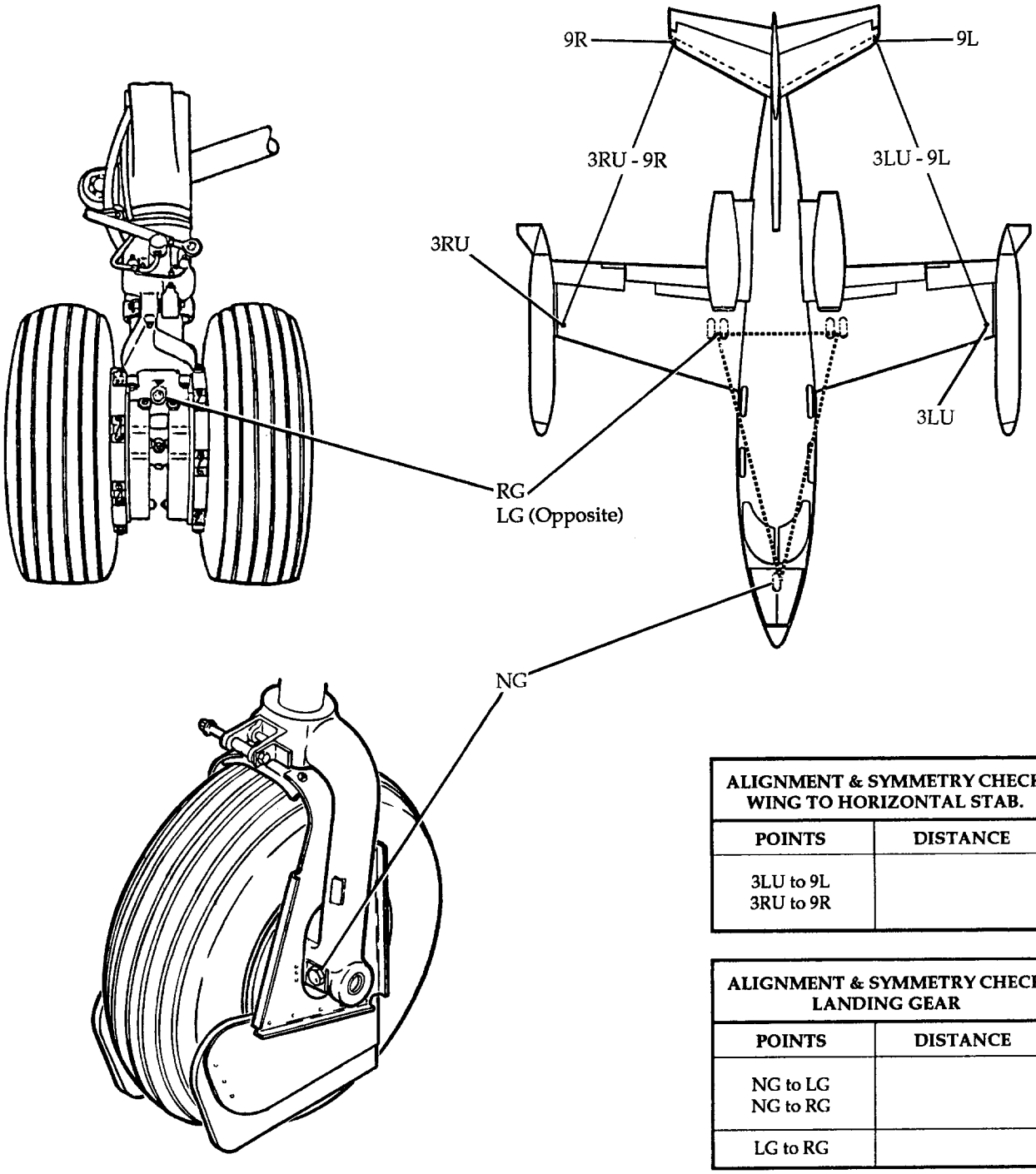
NOTE: Accurate elevations and recording of check points 5L, 5R, 6L and 6R to the second decimal is required. Locate all scales for large numbers to be at bottom.

7) Shoot and record elevations of check points 5L, 6L, 5R and 6R.

NOTE: See Figure 1 for points to locate contour board on upper wings and horizontal stabilizer.

8) Place contour boards across upper wing surfaces at points referenced in Figure 1. Locate on wings at points specified on contour boards; use a clinometer and record angle of incidence at each station in degrees and minutes.
9) Place contour board on stabilizer at BL 19.40. Actuate stabilizer until clinometer (placed on contour board) indicates the stabilizer leading edge is 0°30' down. All incidence checks shall be made with the stabilizer in this position.
10) Place contour boards across upper stabilizer surface at all points referenced in Figure 1. Locate at points specified on contour boards; use a clinometer and record incidence in degrees and minutes.

(e) Measure and record distances from 3LU to 9L and 3RU to 9R.
(f) Drop a plumb bob from left main landing gear (LG), right main landing gear (RG), and nose landing gear (NG) to hangar floor and mark locations on hangar floor. Remove Plumb bobs.
(g) Measure and record distances from 3LU to 9L and from 3RU to 9R.
(h) Remove contour boards, clinometer, and levels from aircraft.
(i) Move aircraft, then measure and record distances from NG to LG, from LG to RG, and from RG to NG.
(j) Remove aircraft from jacks and secure aircraft as desired.

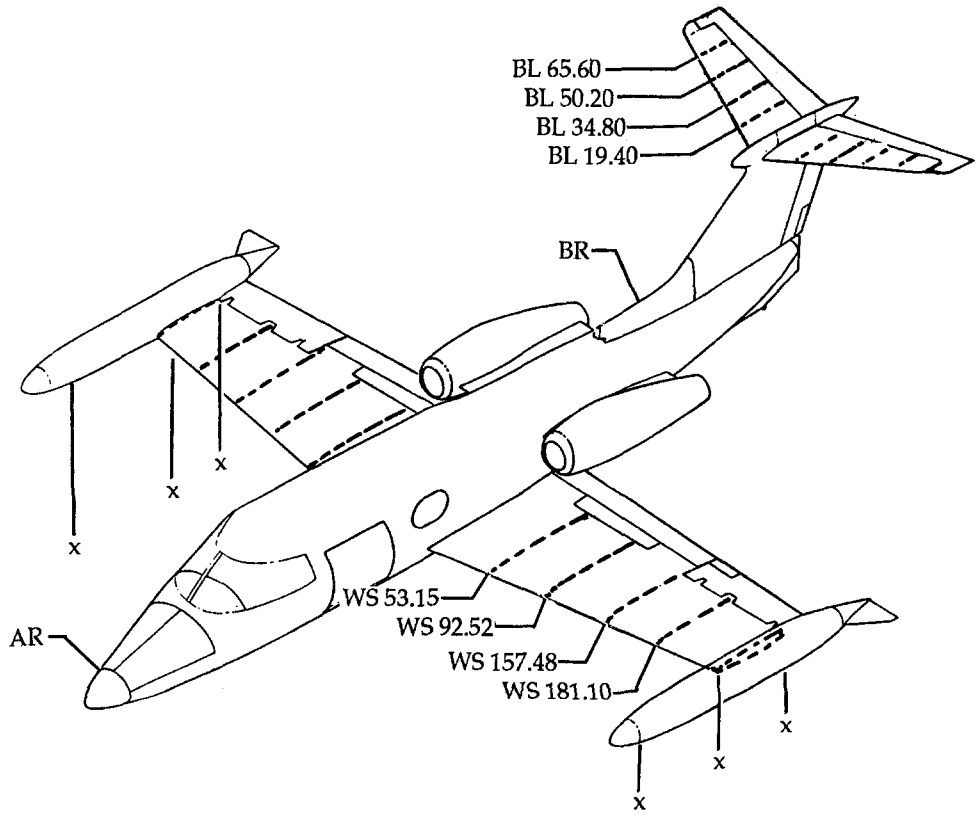


ALIGNMENT & SYMMETRY CHECK WING TO HORIZONTAL STAB.	
POINTS	DISTANCE
3LU to 9L 3RU to 9R	

ALIGNMENT & SYMMETRY CHECK LANDING GEAR	
POINTS	DISTANCE
NG to LG NG to RG	
LG to RG	

(TYPICAL)

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 1 of 3)



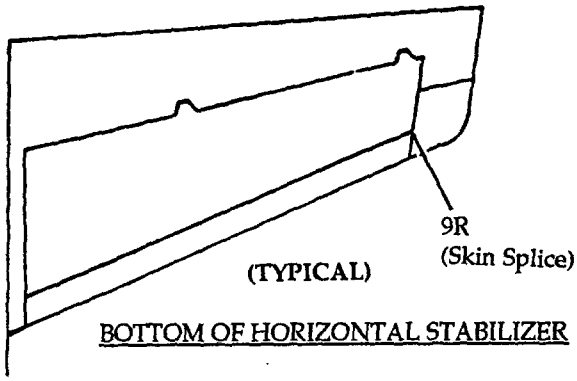
WING STATION	ANGLE OF INCIDENCE	
	LH WING	RH WING
53.15		
92.52		
157.48		
181.10		

STABILIZER INCIDENCE			
BUTT LINE	INC.	BUTT LINE	INC.
LBL 19.40		RBL 19.40	
LBL 34.80		RBL 34.80	
LBL 50.20		RBL 50.20	
LBL 65.60		RBL 65.60	

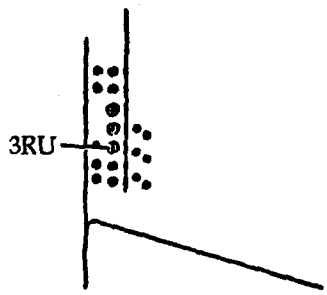
ELEVATION CHECK POINTS		
POINTS	ACTUAL ELEVATION	ELEVATION DIFFERENCE
5L		
5R		
6L		
6R		

(TYPICAL)

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 2 of 3)

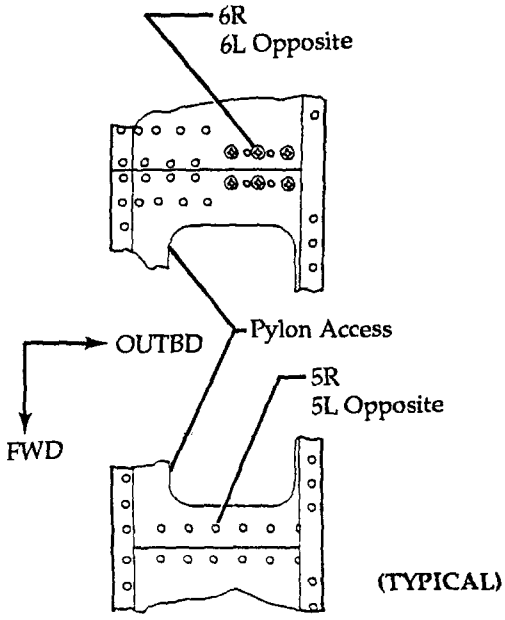


BOTTOM OF HORIZONTAL STABILIZER

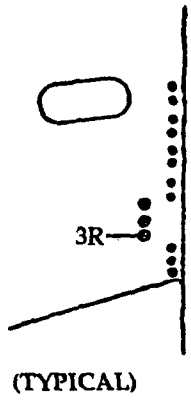


(TYPICAL)

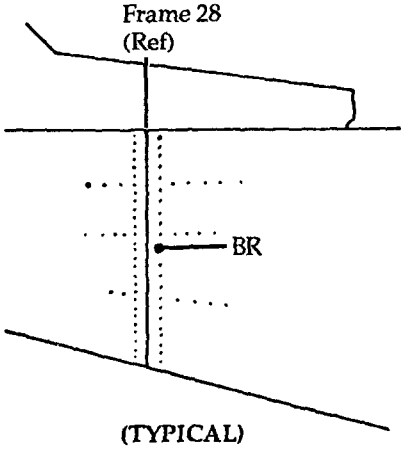
TOP OF WING TIP



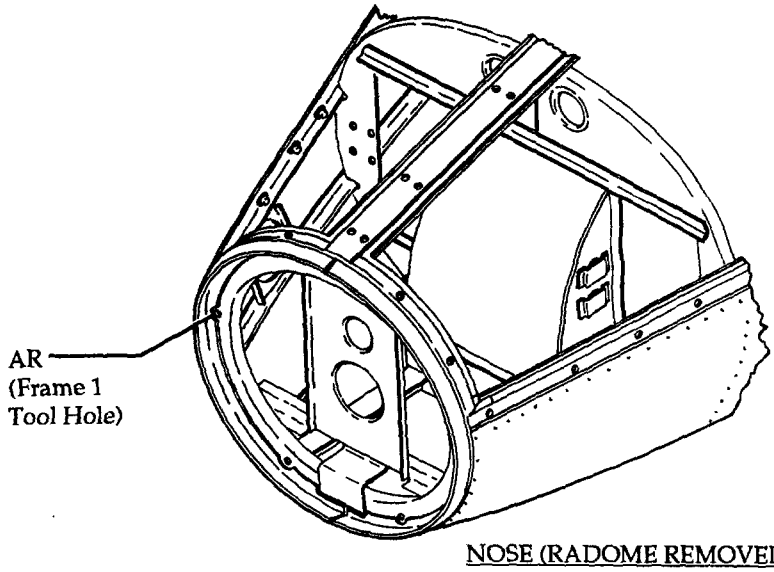
UNDERSIDE OF RIGHT PYLON



BOTTOM OF WING TIP



RIGHT SIDE OF FUSELAGE



NOSE (RADOME REMOVED

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 3 of 3)

B. Alignment and Symmetry Inspection – *Model 25 Series Aircraft*

NOTE:
- Personnel must not be permitted on or in the aircraft while the alignment inspection is in progress.
- Aircraft shall be parked inside hangar and hangar doors shall be closed during this inspection.

(1) Level aircraft laterally, longitudinally, and check aircraft elevation, as follows:
  (a) Defuel aircraft. (Refer to the appropriate Learjet Service/Maintenance Manual for defueling instructions.)
  (b) Place aircraft on jacks with landing gear fully extended and clear of hangar floor. Aircraft door shall be closed. (Refer to the appropriate Learjet Service/Maintenance Manual for jacking procedures.)
  (c) Perform preliminary aircraft leveling as follows:
    1) Level laterally by placing level across inboard seat rails. Place level on top surface of one of the inboard seat rails to obtain longitudinal leveling. Adjust jacks to level.
  (d) Perform final aircraft leveling as follows:
    1) Position transit, mounted on a tripod (approximately 24 inches high), at the right aft side of aircraft as required to shoot all check points.
    2) Shoot lateral leveling points 3L and 3R. Place adapter point in screw heads when holding scale at these locations.
    3) Insert phillips head screwdriver through scale adapter and hold in screw head at frame 27.
    4) Shoot longitudinal leveling point BR.
    5) Remove radome cover and insert scale adapter through right tooling hole in frame 1.
    6) Shoot longitudinal level point AR.

NOTE: The following is an example for leveling an aircraft.

1	Frame Number	27	1
2	*Reference Point	---	23.36
3	Scale Reading	35.46	+11.00
4	2 + 3	35.46	34.36
5	Δ 4	1.10	1.10

EXAMPLE: Since frame 27 measurement is 35.46 and is larger than frame 1 measurement at 34.36, the forward end of the aircraft (frame 1) is 1.10 too low. Adjust nose jack as required for level condition.

* Reference point 23.36 is the distance between WL 13.039 (frame 1 tooling hole) and WL 36.40 (frame 27 screw head).

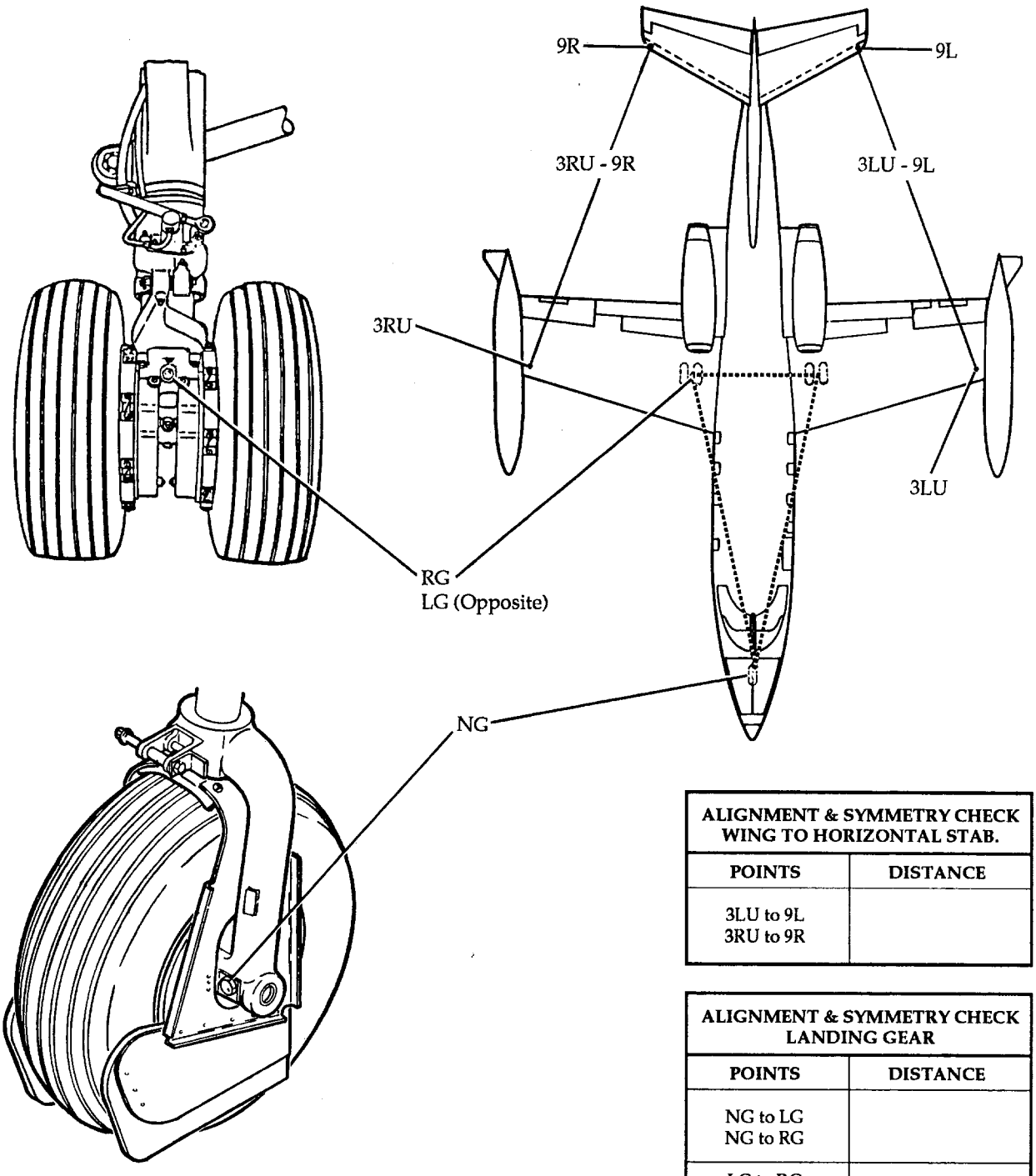
NOTE: Accurate elevations and recording of check points 5L, 5R, 6L and 6R to the second decimal is required. Locate all scales for large numbers to be at bottom.

7) Shoot and record elevations of check points 5L, 6L, 5R and 6R.

NOTE: See Figure 1 for points to locate contour board on upper wings and horizontal stabilizer.

8) Place contour boards across upper wing surfaces at points referenced in Figure 1. Locate on wings at points specified on contour boards; use a clinometer and record angle of incidence at each station in degrees and minutes.
9) Place contour board on stabilizer at BL 19.40. Actuate stabilizer until clinometer (placed on contour board) indicates the stabilizer leading edge is 0°30' down. All incidence checks shall be made with the stabilizer in this position.
10) Place contour boards across upper stabilizer surface at all points referenced in Figure 1. Locate at points specified on contour boards; use a clinometer and record incidence in degrees and minutes.

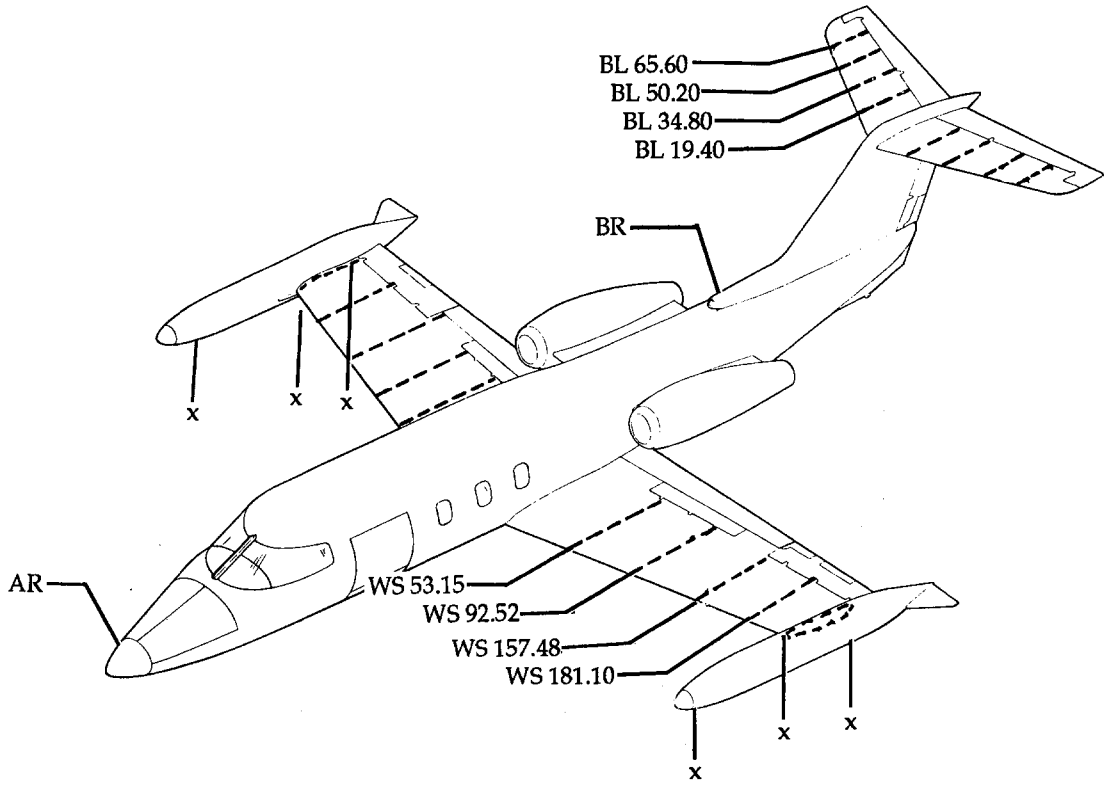
(e) Measure and record distances from 3LU to 9L and 3RU to 9R.
(f) Drop a plumb bob from left main landing gear (LG), right main landing gear (RG), and nose landing gear (NG) to hangar floor and mark locations on hangar floor. Remove plumb bobs.
(g) Measure and record distances from 3LU to 9L and from 3RU to 9R.
(h) Remove contour boards, clinometer, and levels from aircraft.
(i) Move aircraft, then measure and record distances from NG to LG, from LG to RG, and from RG to NG.
(j) Remove aircraft from jacks and secure aircraft as desired.



ALIGNMENT & SYMMETRY CHECK WING TO HORIZONTAL STAB.	
POINTS	DISTANCE
3LU to 9L 3RU to 9R	

ALIGNMENT & SYMMETRY CHECK LANDING GEAR	
POINTS	DISTANCE
NG to LG NG to RG	
LG to RG	

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 1 of 3)

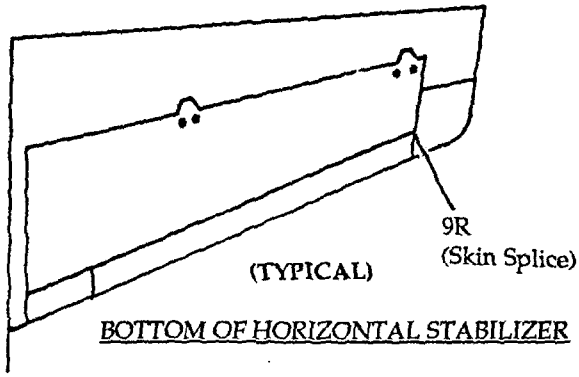


WING STATION	ANGLE OF INCIDENCE	
	LH WING	RH WING
53.15		
92.52		
157.48		
181.10		

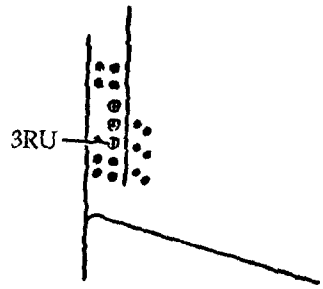
STABILIZER INCIDENCE			
BUTT LINE	INC.	BUTT LINE	INC.
LBL 19.40		RBL 19.40	
LBL 34.80		RBL 34.80	
LBL 50.20		RBL 50.20	
LBL 65.60		RBL 65.60	

ELEVATION CHECK POINTS		
POINTS	ACTUAL ELEVATION	ELEVATION DIFFERENCE
5L		
5R		
6L		
6R		

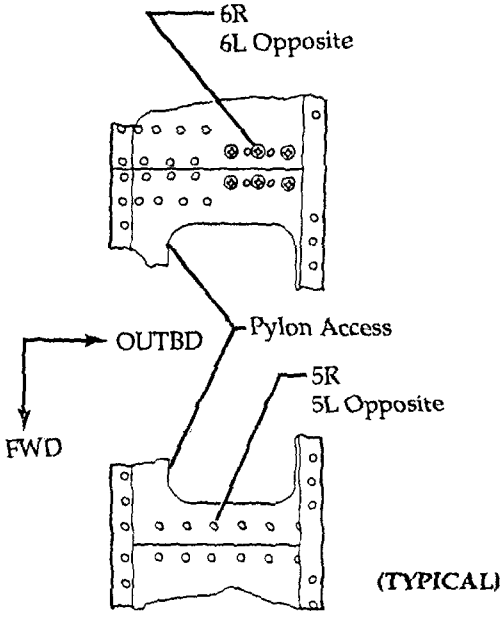
Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 2 of 3)



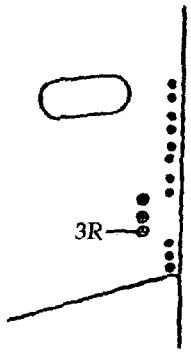
BOTTOM OF HORIZONTAL STABILIZER



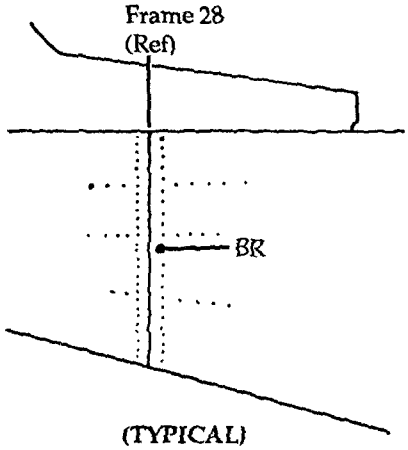
TOP OF WING TIP



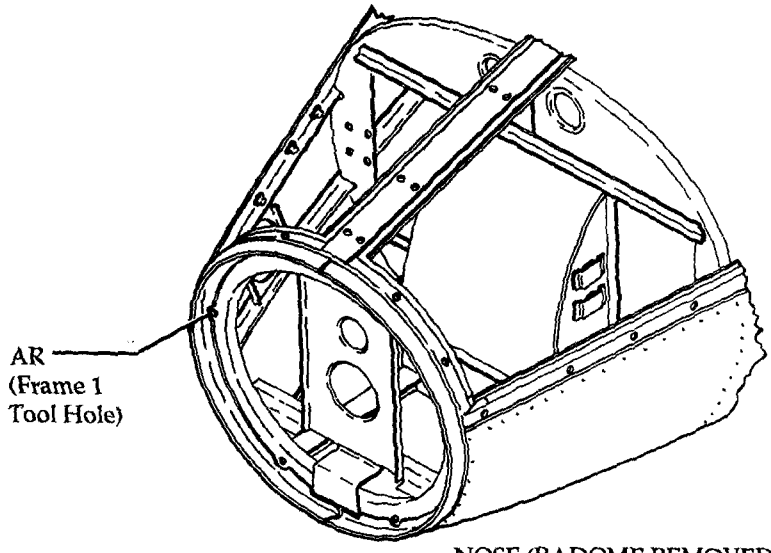
UNDERSIDE OF RIGHT PYLON



BOTTOM OF WING TIP



RIGHT SIDE OF FUSELAGE



NOSE (RADOME REMOVED

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 3 of 3)

C. Alignment and Symmetry Inspection – *Model 28/29 Series Aircraft*

NOTE:
- Personnel must not be permitted on or in the aircraft while the alignment inspection is in progress.
- Aircraft shall be parked inside hangar and hangar doors shall be closed during this inspection.

(1) Level aircraft laterally, longitudinally, and check aircraft elevation, as follows:
  (a) Defuel aircraft. (Refer to Chapter 28 in the appropriate Learjet Maintenance Manual for defueling instructions.)
  (b) Place aircraft on jacks with landing gear fully extended and clear of hangar floor. Aircraft door shall be closed. (Refer to Chapter 7 in the appropriate Learjet Maintenance Manual for jacking procedures.)
  (c) Perform preliminary aircraft leveling as follows:
    1) Level laterally by placing level across inboard seat rails. Place level on top surface of one of the inboard seat rails to obtain longitudinal leveling. Adjust jacks to level.
  (d) Perform final aircraft leveling as follows:
    1) Position transit, mounted on a tripod (approximately 24 inches high), at the right aft side of aircraft as required to shoot all check points.
    2) Shoot lateral leveling points 3L and 3R. Place adapter point in screw heads when holding scale at these locations.
    3) Insert phillips head screwdriver through scale adapter and hold in screw head at frame 27.
    4) Shoot longitudinal leveling point BR.
    5) Remove radome cover and insert scale adapter through right tooling hole in frame 1.
    6) Shoot longitudinal level point AR.

NOTE: The following is an example for leveling an aircraft.

1	Frame Number	27	1
2	*Reference Point	---	23.36
3	Scale Reading	35.43	+11.00
4	2 + 3	35.43	34.33
5	Δ 4	1.10	1.10

EXAMPLE: Since frame 27 measurement is 35.43 and is larger than frame 1 measurement at 34.33, the forward end of the aircraft (frame 1) is 1.10 too low. Adjust nose jack as required for level condition.

* Reference point 23.36 is the distance between WL 13.039 (frame 1 tooling hole) and WL 36.40 (frame 27 screw head).

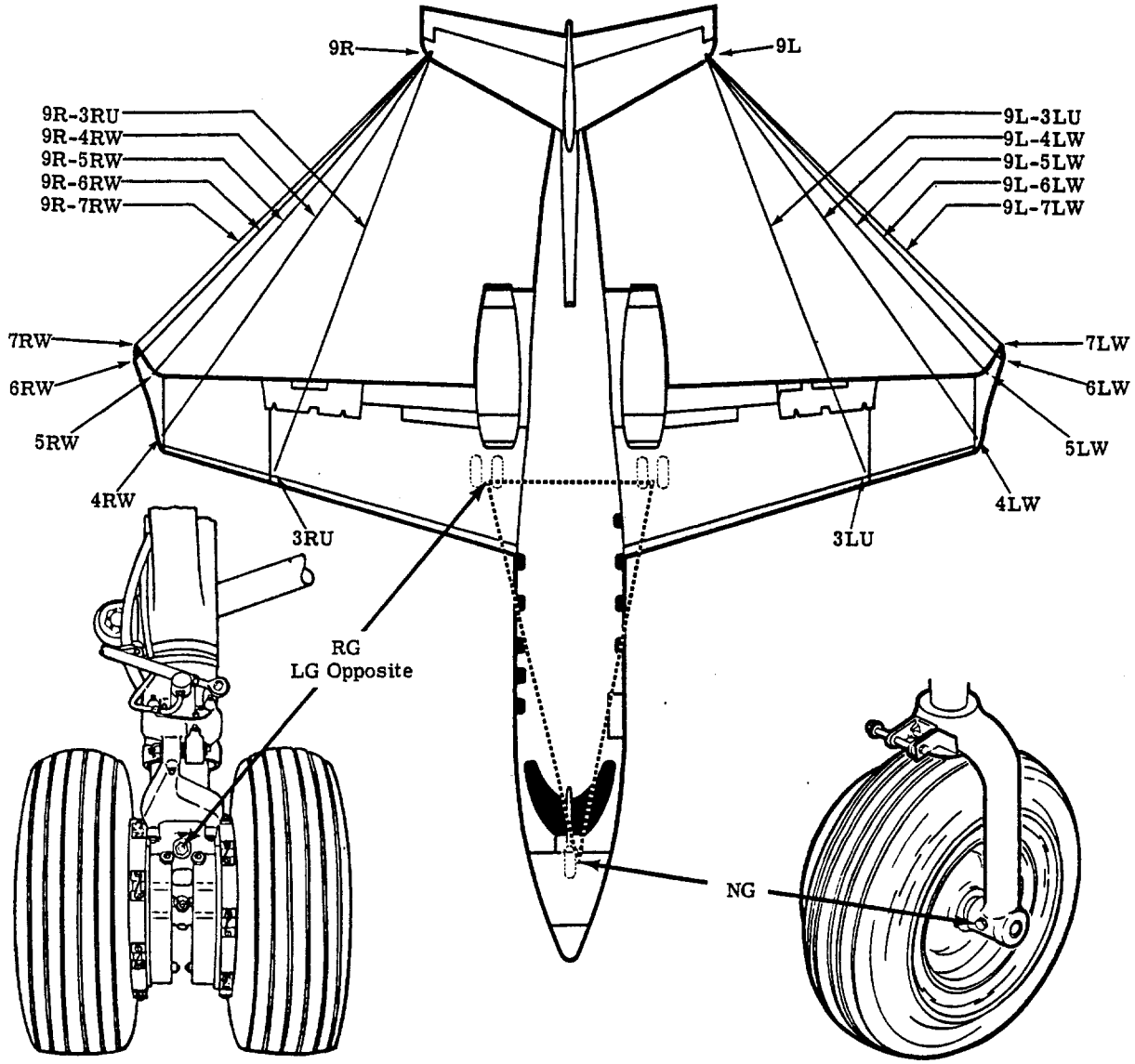
NOTE: Accurate elevations and recording of check points 5L, 5R, 6L and 6R to the second decimal is required. Locate all scales for large numbers to be at bottom.

7) Shoot and record elevations of check points 5L, 6L, 5R and 6R.

NOTE: See Figure 1 for points to locate contour board on upper wings and horizontal stabilizer.

8) Place contour boards across upper wing surfaces at points referenced in Figure 1. Locate on wings at points specified on contour boards; use a clinometer and record angle of incidence at each station in degrees and minutes.
9) Place contour board on stabilizer at BL 19.40. Actuate stabilizer until clinometer (placed on contour board) indicates the stabilizer leading edge is -1°30' down. All incidence checks shall be made with the stabilizer in this position.
10) Place contour boards across upper stabilizer surface at all points referenced in Figure 1. Locate at points specified on contour boards; use a clinometer and record incidence in degrees and minutes.

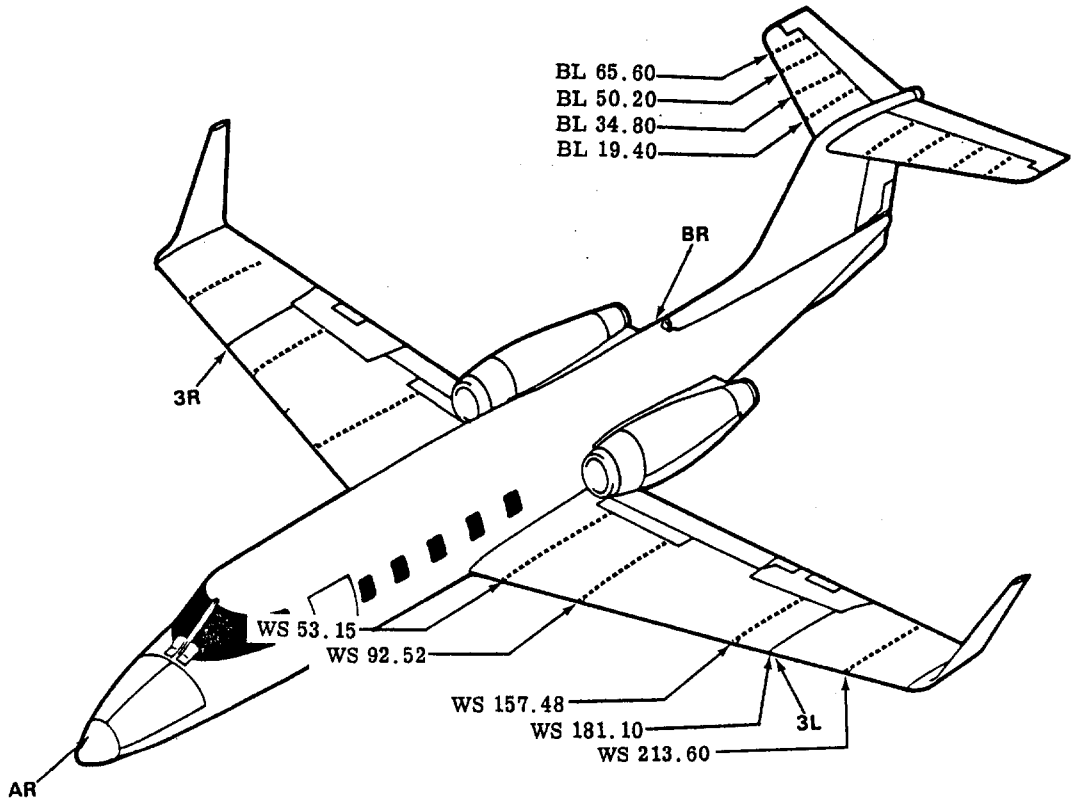
(e) Drop a plumb bob from left main landing gear (LG), right main landing gear (RG), and nose landing gear (NG) to hangar floor and mark locations on hangar floor. Remove plumb bobs.
(f) Measure and record distances from point 9L to points 3LU, 4LW, 5LW, 6LW, and 7LW, and point 9R to points 3RU, 4RW, 5RW, 6RW, and 7RW.
(g) Remove contour boards, clinometer, and levels from aircraft.
(h) Move aircraft, then measure and record distances from NG to LG, from LG to RG, and from RG to NG.
(i) Remove aircraft from jacks and secure aircraft as desired.



ALIGNMENT & SYMMETRY CHECK WING TO HORIZONTAL STAB.			
POINTS	DISTANCE	POINTS	DISTANCE
9L to 3LU		9R to 3RU	
9L to 4LW		9R to 4RW	
9L to 5LW		9R to 5RW	
9L to 6LW		9R to 6RW	
9L to 7LW		9R to 7RW	

ALIGNMENT & SYMMETRY CHECK LANDING GEAR	
POINTS	DISTANCE
NG to LG NG to RG	
LG to RG	

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 1 of 4)



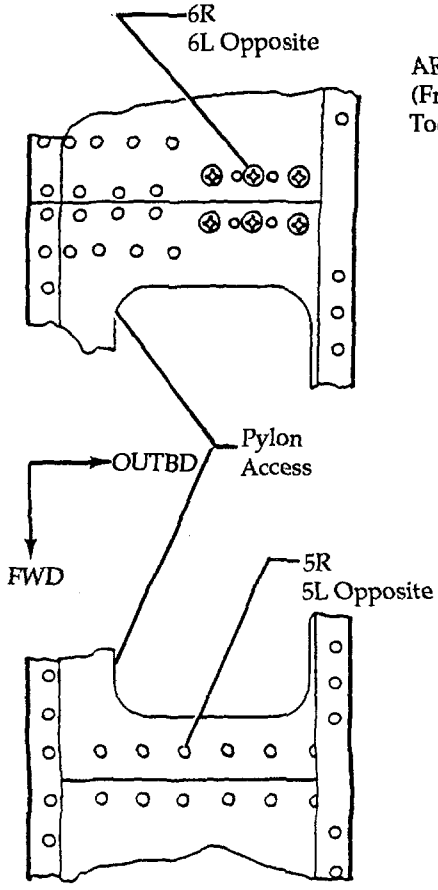
WING STATION	ANGLE OF INCIDENCE	
	LH WING	RH WING
53.15		
92.52		
157.48		
181.10		
213.60		

STABILIZER INCIDENCE			
BUTT LINE	INC.	BUTT LINE	INC.
LBL 19.40		RBL 19.40	
LBL 34.80		RBL 34.80	
LBL 50.20		RBL 50.20	
LBL 65.60		RBL 65.60	

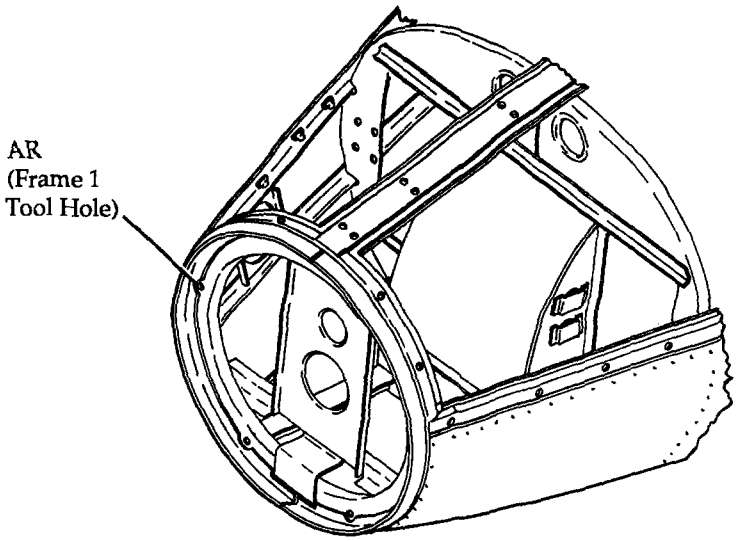
LEVELING POINT ELEVATIONS		
LONGITUDINAL	FRAME 1 AR*	
	FRAME 27 BR	
LATERAL	L WING 3L	
	R WING 3R	

ELEVATION CHECK POINTS		
POINTS	ACTUAL ELEVATION	ELEVATION DIFFERENCE
5L		
5R		
6L		
6R		

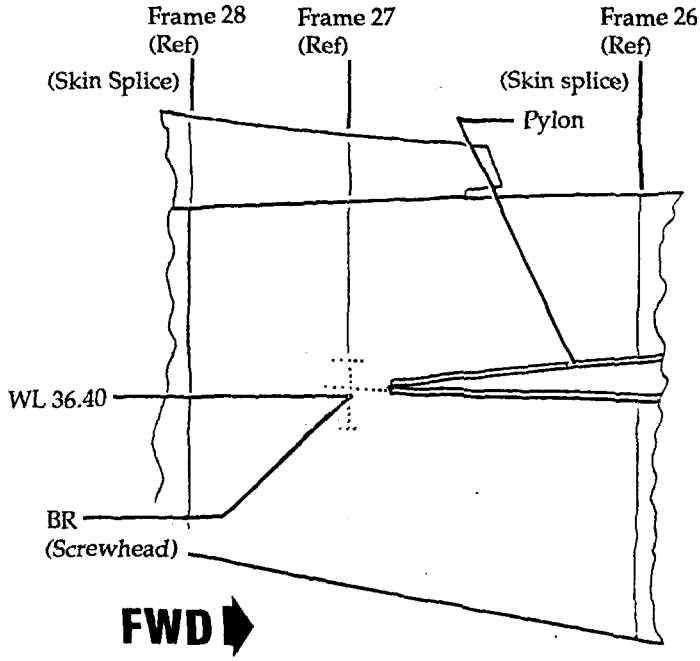
Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 2 of 4)



UNDERSIDE OF RIGHT PYLON

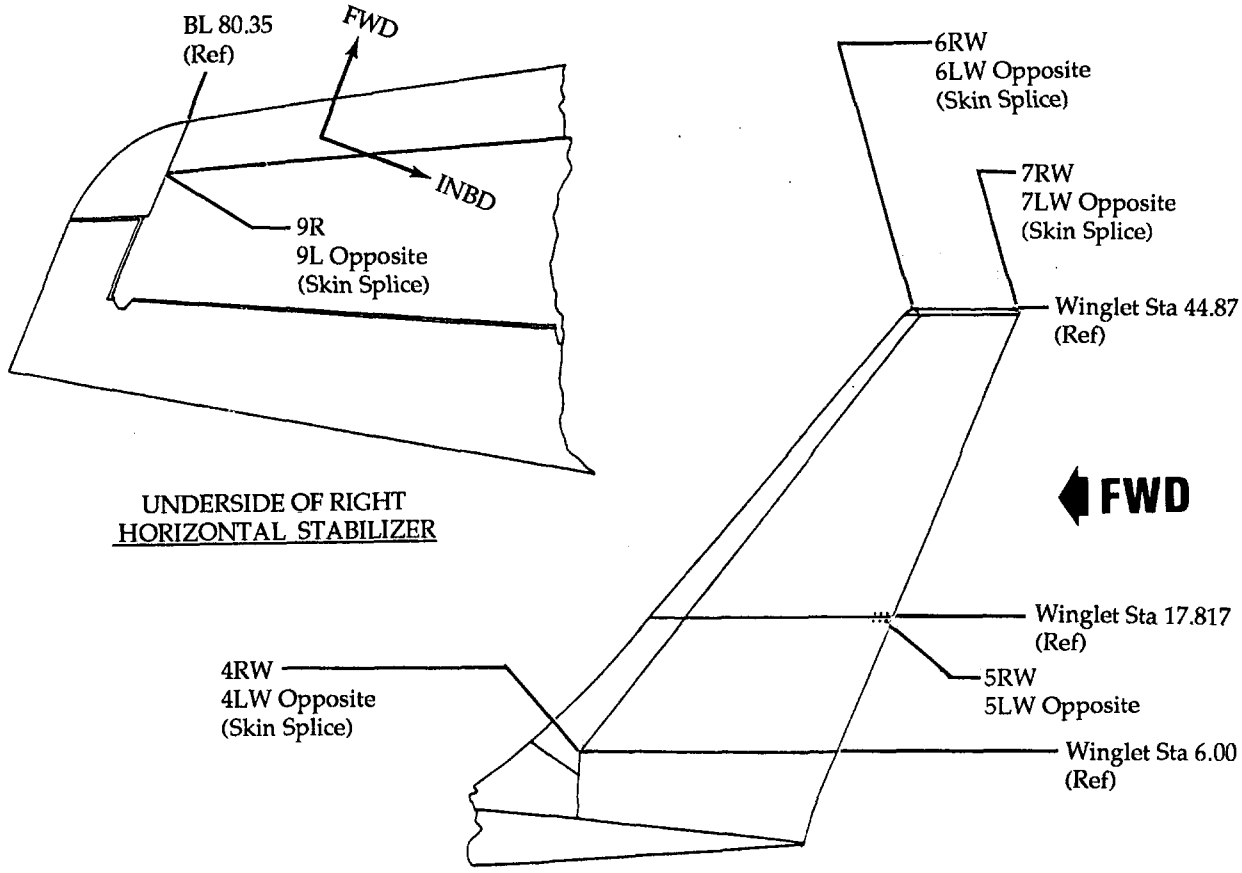


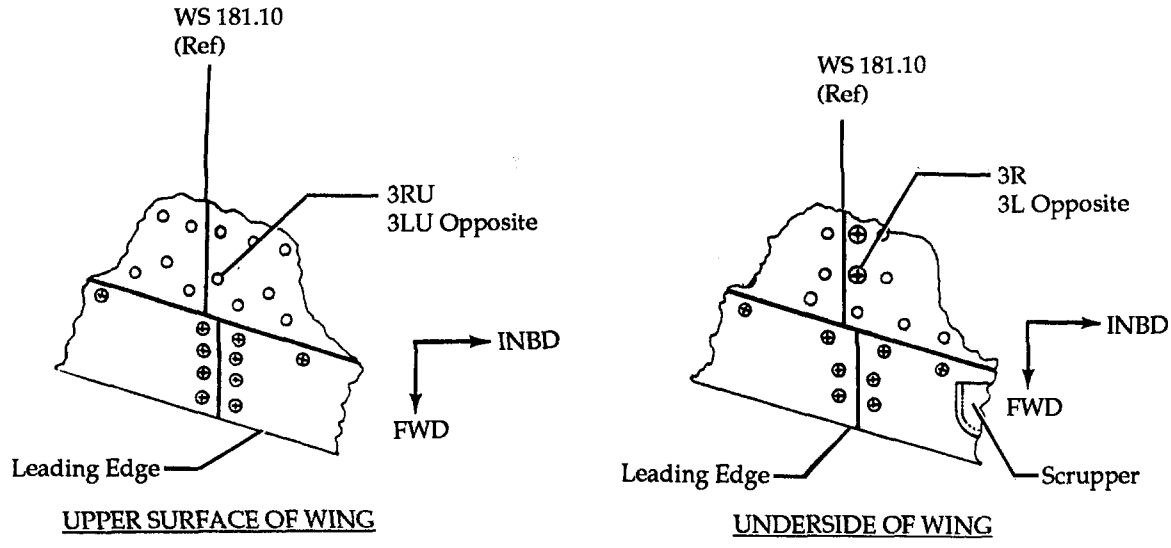
NOSE (RADOME REMOVED)



RIGHT SIDE OF FUSELAGE

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 3 of 4)





Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 4 of 4)

D. Alignment and Symmetry Inspection – *Model 31 Series Aircraft*

NOTE:
- Personnel must not be permitted on or in the aircraft while the alignment inspection is in progress.
- Aircraft shall be parked inside hangar and hangar doors shall be closed during this inspection.

(1) Level aircraft laterally, longitudinally, and check aircraft elevation, as follows:
  (a) Defuel aircraft. (Refer to Chapter 28 in the appropriate Learjet Maintenance Manual for defueling instructions.)
  (b) Place aircraft on jacks with landing gear fully extended and clear of hangar floor. Aircraft door shall be closed. (Refer to Chapter 7 in the appropriate Learjet Maintenance Manual for jacking procedures.)
  (c) Perform preliminary aircraft leveling as follows:
    1) Level laterally by placing level across inboard seat rails. Place level on top surface of one of the inboard seat rails to obtain longitudinal leveling. Adjust jacks to level.
  (d) Perform final aircraft leveling as follows:
    1) Position transit, mounted on a tripod (approximately 24 inches high), at the right aft side of aircraft as required to shoot all check points.
    2) Shoot lateral leveling points 3L and 3R. Place adapter point in screw heads when holding scale at these locations.
    3) Insert phillips head screwdriver through scale adapter and hold in screw head at frame 27.
    4) Shoot longitudinal leveling point BR.
    5) Remove radome cover and insert scale adapter through right tooling hole in frame 1.
    6) Shoot longitudinal level point AR.

NOTE: The following is an example for leveling an aircraft.

1	Frame Number	27	1
2	*Reference Point	---	23.36
3	Scale Reading	35.46	+11.00
4	2 + 3	35.46	34.36
5	Δ 4	1.10	1.10

EXAMPLE: Since frame 27 measurement is 35.46 and is larger than frame 1 measurement at 34.36, the forward end of the aircraft (frame 1) is 1.10 too low. Adjust nose jack as required for level condition.

* Reference point 23.36 is the distance between WL 13.039 (frame 1 tooling hole) and WL 36.40 (frame 27 screw head).

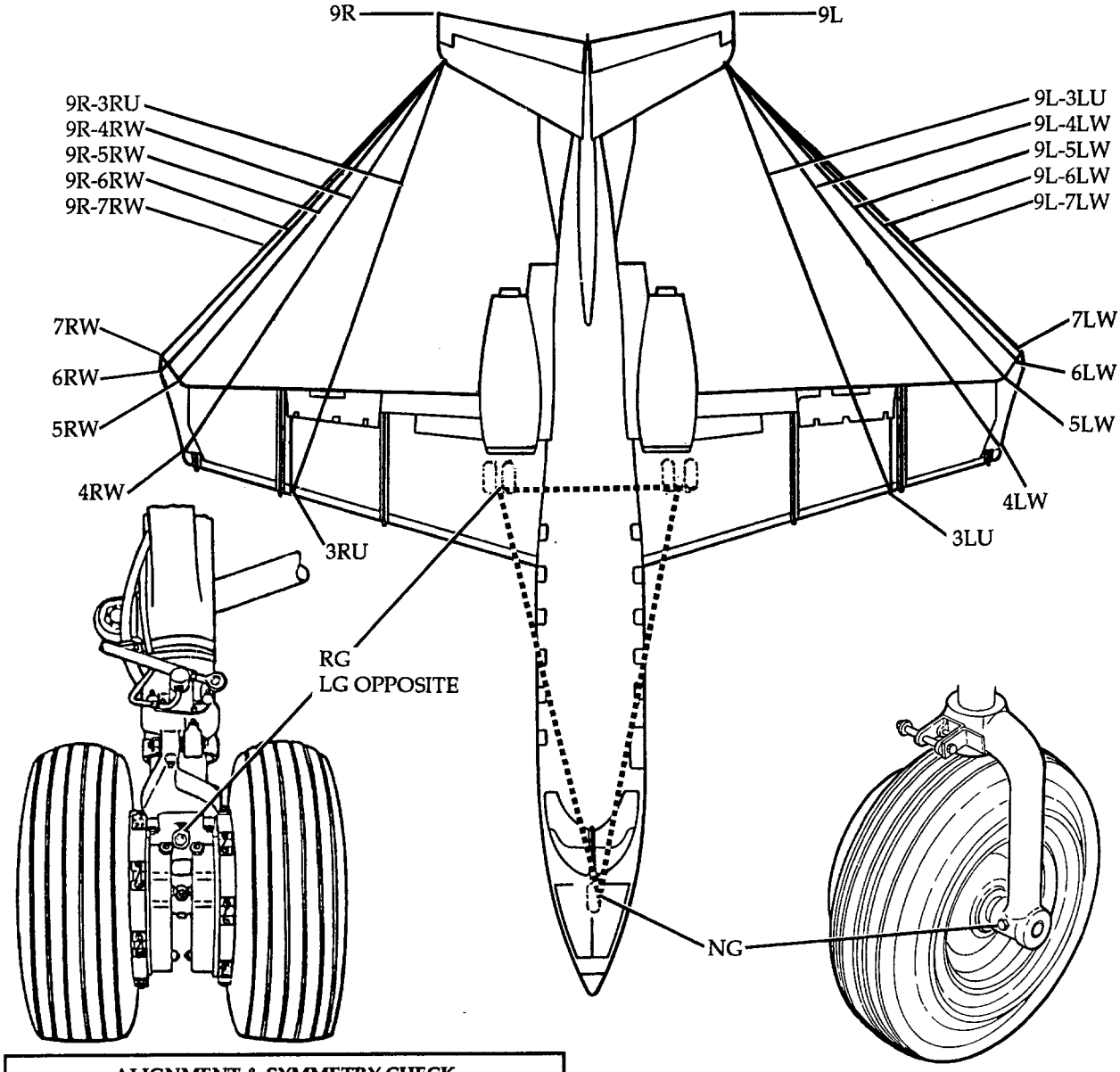
NOTE: Accurate elevations and recording of check points 5L, 5R, 6L and 6R to the second decimal is required. Locate all scales for large numbers to be at bottom.

7) Shoot and record elevations of check points 5L, 6L, 5R and 6R.

NOTE: See Figure 1 for points to locate contour board on upper wings and horizontal stabilizer.

8) Place contour boards across upper wing surfaces at points referenced in Figure 1. Locate on wings at points specified on contour boards; use a clinometer and record angle of incidence at each station in degrees and minutes.
9) Place contour board on stabilizer at BL 19.40. Actuate stabilizer until clinometer (placed on contour board) indicates the stabilizer leading edge is -2° (+0; -15') down. All incidence checks shall be made with the stabilizer in this position.
10) Place contour boards across upper stabilizer surface at all points referenced in Figure 1. Locate at points specified on contour boards; use a clinometer and record incidence in degrees and minutes.

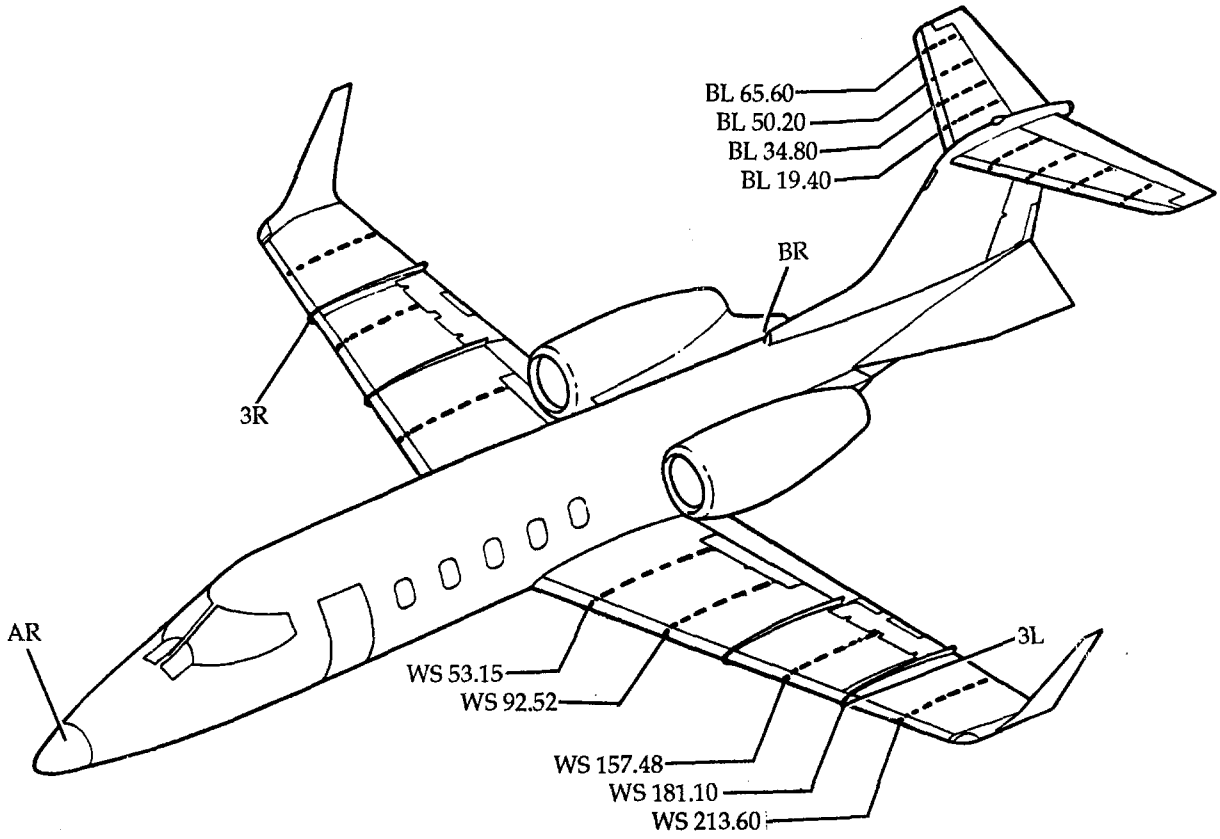
(e) Drop a plumb bob from left main landing gear (LG), right main landing gear (RG), and nose landing gear (NG) to hangar floor and mark locations on hangar floor. Remove plumb bobs.
(f) Measure and record distances from point 9L to points 3LU, 4LW, 5LW, 6LW, and 7LW, and point 9R to points 3RU, 4RW, 5RW, 6RW, and 7RW.
(g) Remove contour boards, clinometer, and levels from aircraft.
(h) Move aircraft, then measure and record distances from NG to LG, from LG to RG, and from RG to NG.
(i) Remove aircraft from jacks and secure aircraft as desired.



ALIGNMENT & SYMMETRY CHECK WING TO HORIZONTAL STAB.			
POINTS	DISTANCE	POINTS	DISTANCE
9L to 3LU		9R to 3RU	
9L to 4LW		9R to 4RW	
9L to 5LW		9R to 5RW	
9L to 6LW		9R to 6RW	
9L to 7LW		9R to 7RW	

ALIGNMENT & SYMMETRY CHECK LANDING GEAR	
POINTS	DISTANCE
NG to LG NG to RG	
LG to RG	

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 1 of 4)



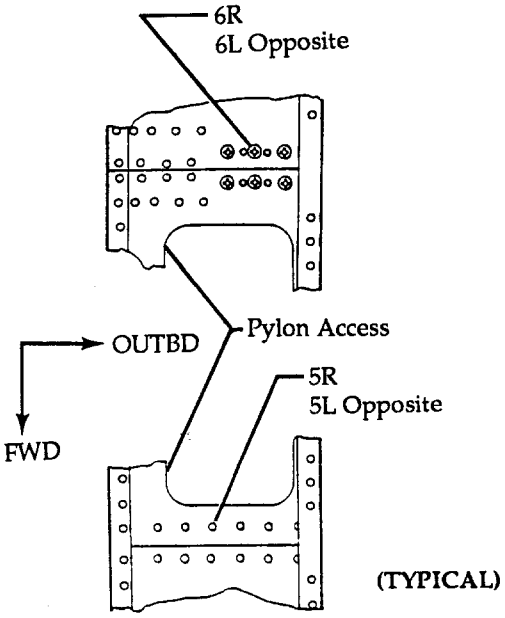
WING STATION	ANGLE OF INCIDENCE	
	LH WING	RH WING
53.15		
92.52		
157.48		
181.10		
213.60		

STABILIZER INCIDENCE			
BUTT LINE	INC.	BUTT LINE	INC.
LBL 19.40		RBL 19.40	
LBL 34.80		RBL 34.80	
LBL 50.20		RBL 50.20	
LBL 65.60		RBL 65.60	

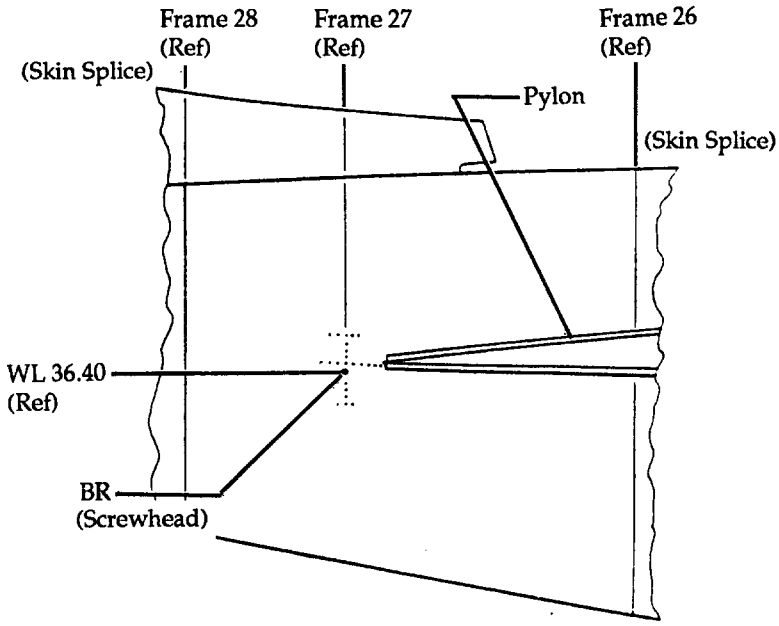
LEVELING POINT ELEVATIONS		
LONGITUDINAL	FRAME 1 AR*	
	FRAME 27 BR	
LATERAL	L WING 3L	
	R WING 3R	

ELEVATION CHECK POINTS		
POINTS	ACTUAL ELEVATION	ELEVATION DIFFERENCE
5L		
5R		
6L		
6R		

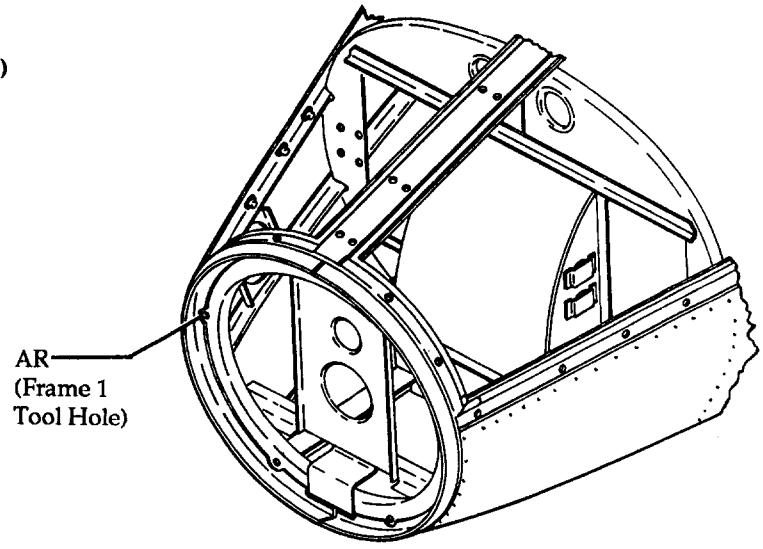
Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 2 of 4)



UNDERSIDE OF RIGHT PYLON

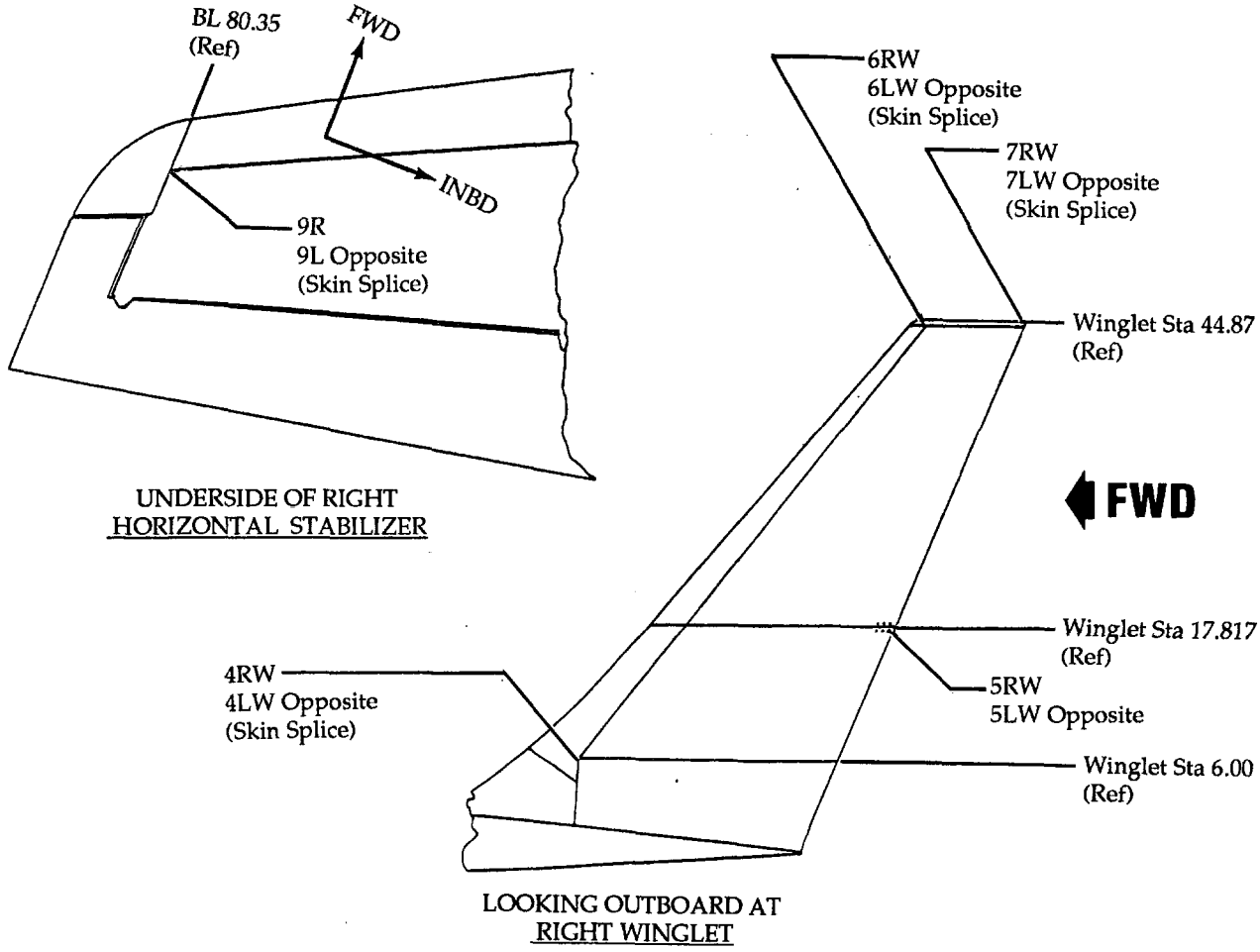


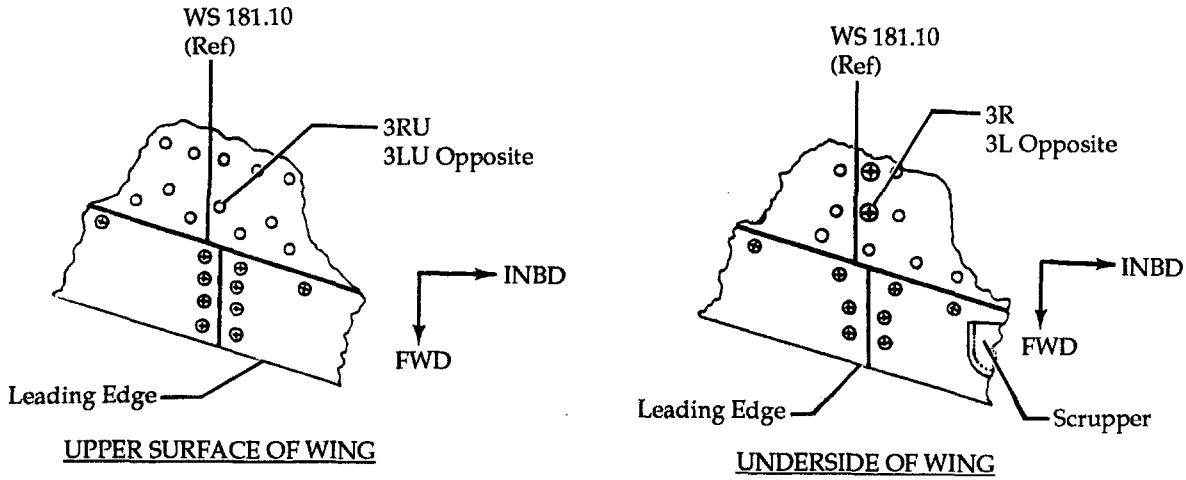
RIGHT SIDE OF FUSELAGE



NOSE (RADOME REMOVED

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 3 of 4)





Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 4 of 4)

E. Alignment and Symmetry Inspection – *Model 35/36 Series Aircraft*

NOTE:
- Personnel must not be permitted on or in the aircraft while the alignment inspection is in progress.
- Aircraft shall be parked inside hangar and hangar doors shall be closed during this inspection.

(1) Level aircraft laterally, longitudinally, and check aircraft elevation, as follows:
  (a) Defuel aircraft. (Refer to Chapter 28 in the appropriate Learjet Maintenance Manual for defueling instructions.)
  (b) Place aircraft on jacks with landing gear fully extended and clear of hangar floor. Aircraft door shall be closed. (Refer to Chapter 7 in the appropriate Learjet Maintenance Manual for jacking procedures.)
  (c) Perform preliminary aircraft leveling as follows:
    1) Level laterally by placing level across inboard seat rails. Place level on top surface of one of the inboard seat rails to obtain longitudinal leveling. Adjust jacks to level.
  (d) Perform final aircraft leveling as follows:
    1) Position transit, mounted on a tripod (approximately 24 inches high), at the right aft side of aircraft as required to shoot all check points.
    2) Shoot lateral leveling points 3L and 3R. Place adapter point in screw heads when holding scale at these locations.
    3) Insert phillips head screwdriver through scale adapter and hold in screw head at frame 27.
    4) Shoot longitudinal leveling point BR.
    5) Remove radome cover and insert scale adapter through right tooling hole in frame 1.
    6) Shoot longitudinal level point AR.

NOTE: The following is an example for leveling an aircraft.

1	Frame Number	27	1
2	*Reference Point	---	23.36
3	Scale Reading	35.46	+11.00
4	2 + 3	35.46	34.36
5	Δ 4	1.10	1.10

EXAMPLE: Since frame 27 measurement is 35.46 and is larger than frame 1 measurement at 34.96, the forward end of the aircraft (frame 1) is 1.10 too low. Adjust nose jack as required for level condition.

* Reference point 23.36 is the distance between WL 13.039 (frame 1 tooling hole) and WL 36.40 (frame 27 screw head).

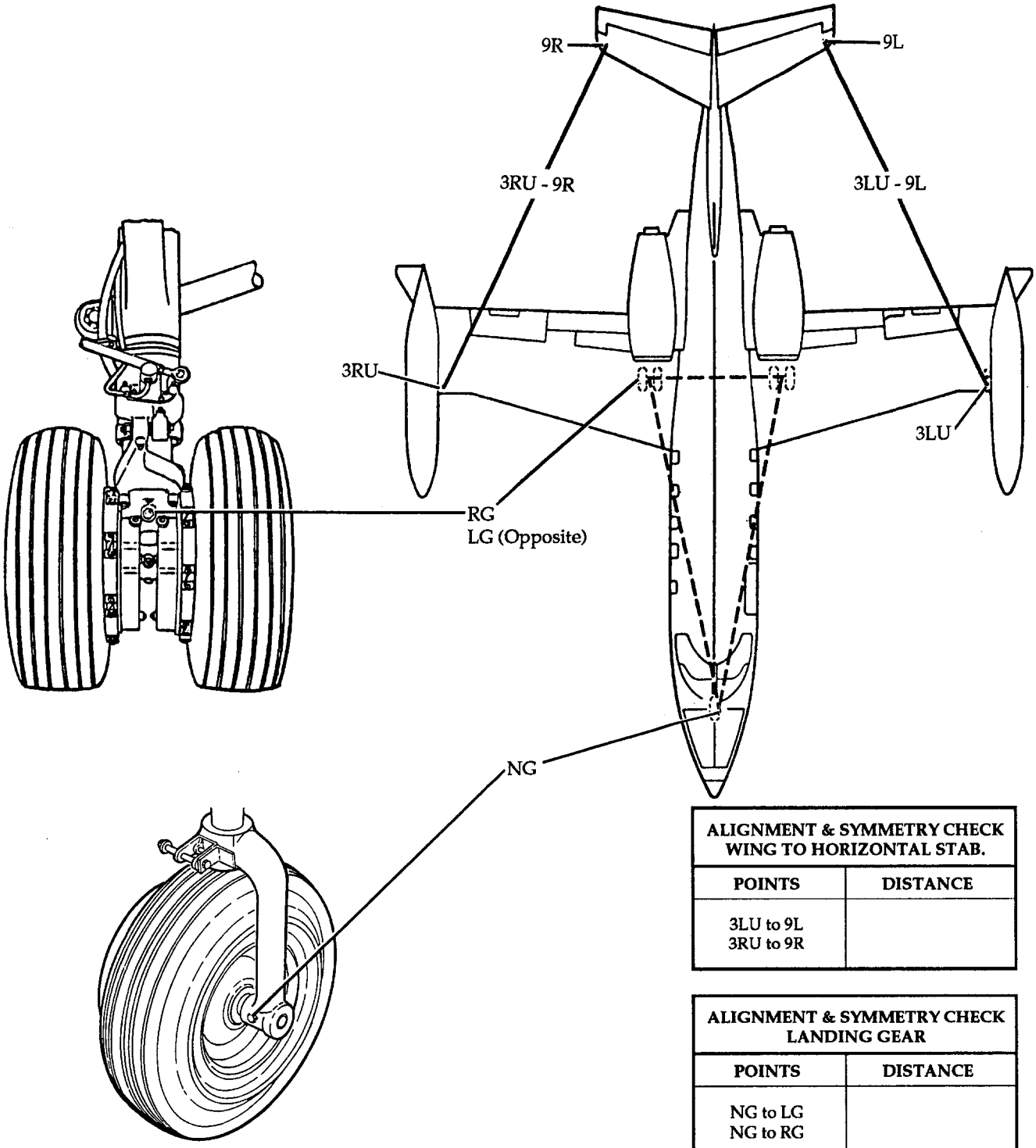
NOTE: Accurate elevations and recording of check points 5L, 5R, 6L and 6R to the second decimal is required. Locate all scales for large numbers to be at bottom.

7) Shoot and record elevations of check points 5L, 6L, 5R and 6R.

NOTE: See Figure 1 for points to locate contour board on upper wings and horizontal stabilizer.

8) Place contour boards across upper wing surfaces at points referenced in Figure 1. Locate on wings at points specified on contour boards; use a clinometer and record angle of incidence at each station in degrees and minutes.
9) Place contour board on stabilizer at BL 19.40. Actuate stabilizer until clinometer (placed on contour board) indicates the stabilizer leading edge is -1°40' down. All incidence checks shall be made with the stabilizer in this position.
10) Place contour boards across upper stabilizer surface at all points referenced in Figure 1. Locate at points specified on contour boards; use a clinometer and record incidence in degrees and minutes.

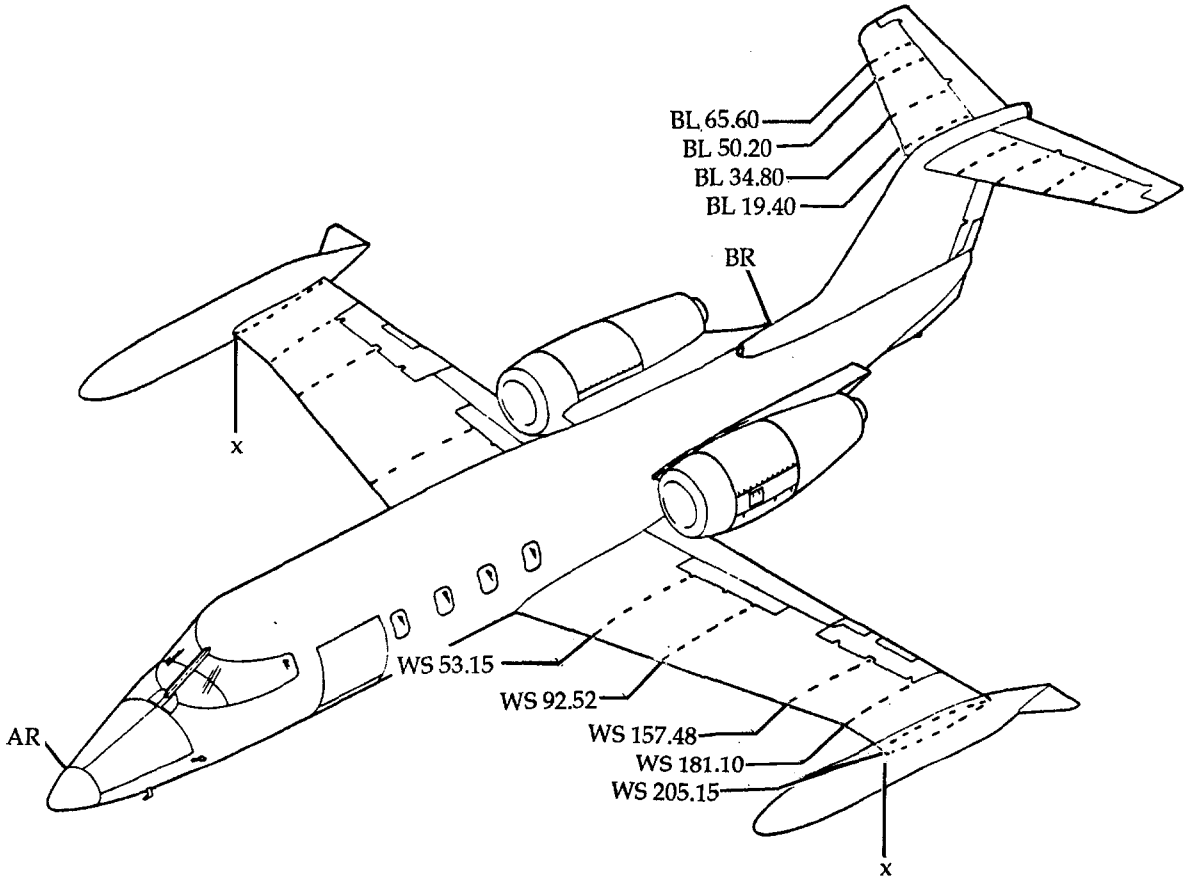
(e) Drop a plumb bob from left main landing gear (LG), right main landing gear (RG), and nose landing gear (NG) to hangar floor and mark locations on hangar floor. Remove plumb bobs.
(f) Measure and record distances from point 9L to 3LU, and from point 9R to 3RU.
(g) Remove contour boards, clinometer, and levels from aircraft.
(h) Move aircraft, then measure and record distances from NG to LG, from LG to RG, and from RG to NG.
(i) Remove aircraft from jacks and secure aircraft as desired.



ALIGNMENT & SYMMETRY CHECK WING TO HORIZONTAL STAB.	
POINTS	DISTANCE
3LU to 9L 3RU to 9R	

ALIGNMENT & SYMMETRY CHECK LANDING GEAR	
POINTS	DISTANCE
NG to LG NG to RG	
LG to RG	

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 1 of 3)

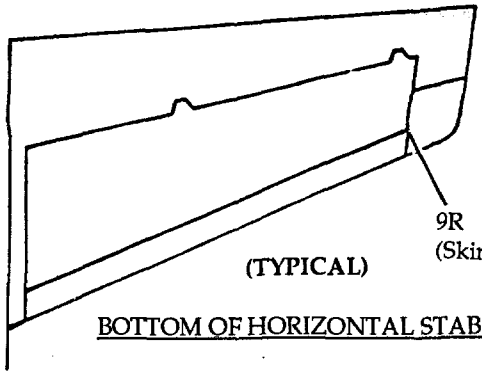


WING STATION	ANGLE OF INCIDENCE	
	LH WING	RH WING
53.15		
92.52		
157.48		
181.10		
213.60		

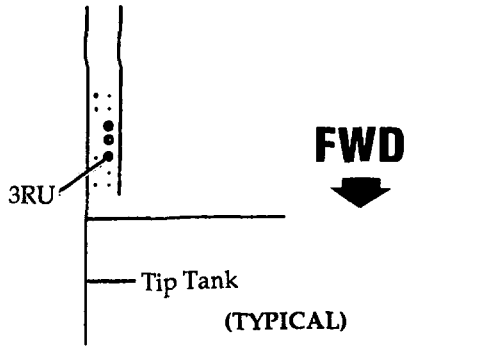
STABILIZER INCIDENCE			
BUTT LINE	INC.	BUTT LINE	INC.
LBL 19.40		RBL 19.40	
LBL 34.80		RBL 34.80	
LBL 50.20		RBL 50.20	
LBL 65.60		RBL 65.60	

ELEVATION CHECK POINTS		
POINTS	ACTUAL ELEVATION	ELEVATION DIFFERENCE
5L		
5R		
6L		
6R		

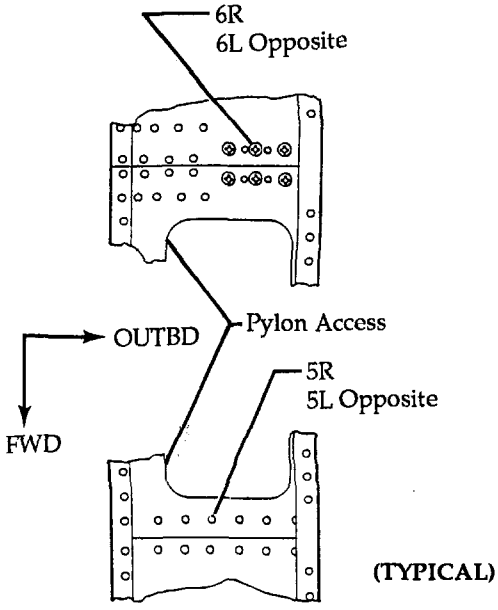
Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 2 of 3)



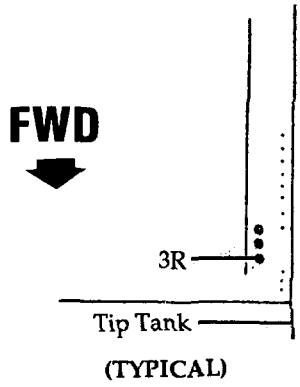
BOTTOM OF HORIZONTAL STABILIZER



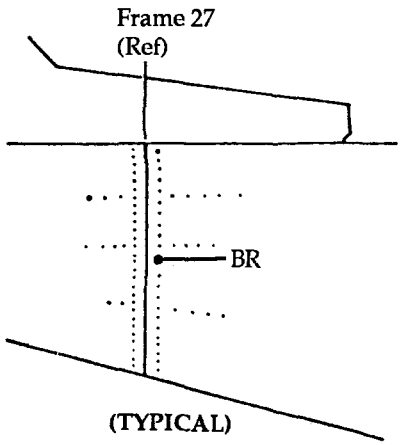
TOP OF WING TIP EXTENSION



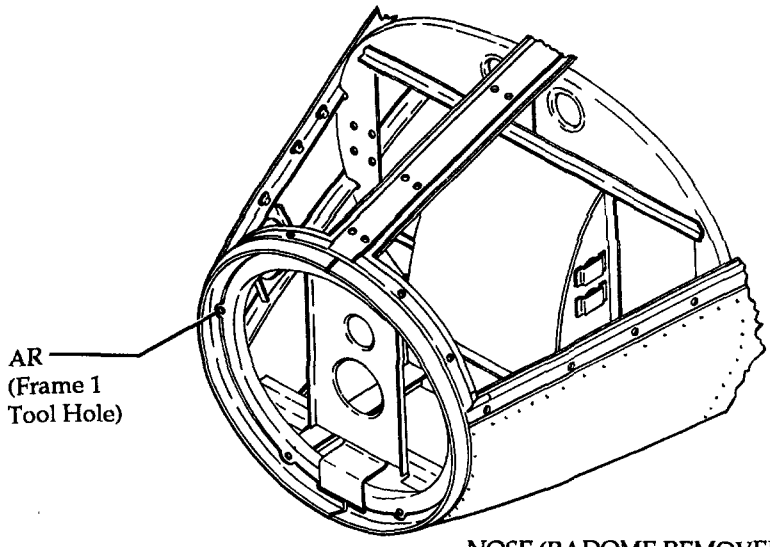
UNDERSIDE OF RIGHT PYLON



BOTTOM OF WING TIP EXTENSION



RIGHT SIDE OF FUSELAGE



NOSE (RADOME REMOVED

Aircraft Alignment and Symmetry Inspection
Figure 1 (Sheet 3 of 3)

4. SUPPORT EQUIPMENT FOR AIRCRAFT REPAIR

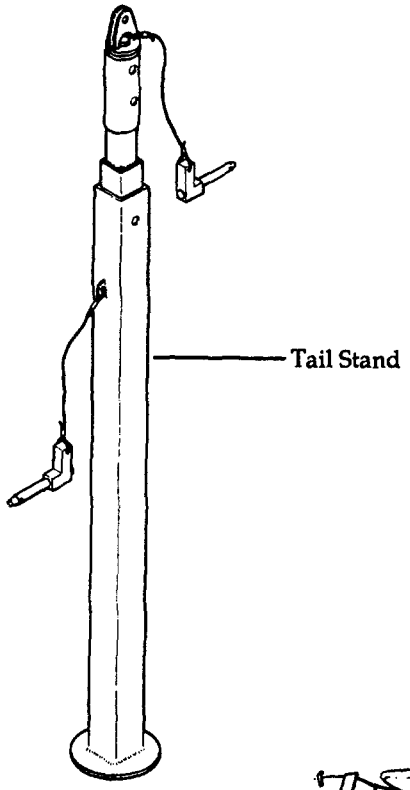
A. See Figure 2 for aircraft support equipment.

NOTE: Equivalent substitutes may be used in lieu of the following:

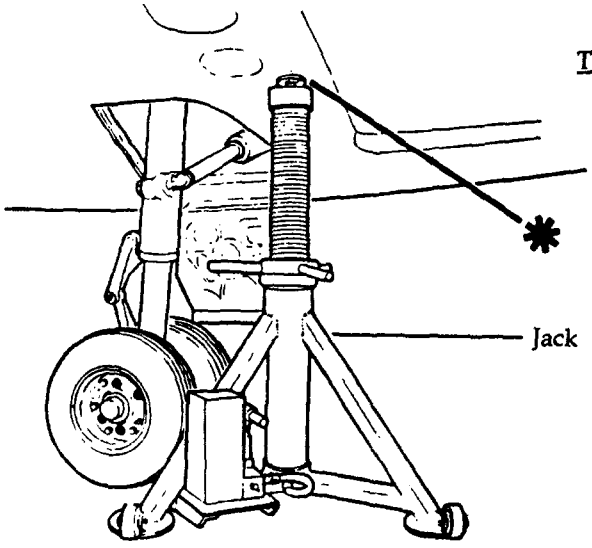
NAME	PART NUMBER	MANUFACTURER	USE
Jack Pad	2370102-4 (1 ea)	Learjet Inc.	Jacking aircraft
Jack Pads	2572006-3 (2 ea)	Learjet Inc.	Jacking aircraft
Tailstand	2471016-1	Learjet Inc.	Jacking aircraft
Tailstand*	3170002	Learjet Inc.	Jacking aircraft
Tripod Jacks (Minimum capacity of 10,000 lbs.)	02-0526-0100 (3 ea.)	Tronair Holland, OH	Jacking aircraft
Spreader Bar	2311600-500	Learjet Inc.	Aircraft support
Wing Mating Dolly	2420000	Learjet Inc.	Wing support
Wing Transfer Dolly	2300001	Learjet Inc.	Wing support
Pylon Jack Adapters**	3170003 (2 ea.)	Learjet Inc.	Jacking aircraft without wings or engines
Pylon Jacks (5 ton, height 64")		Commercially available	Jacking aircraft without wings or engines
Keel Beam Dolly		Learjet Inc.	Keel beam support
Engine Stand	PME 500006	Learjet Inc.	Engine support
Engine Hoist	04-0308-0112	Tronair Holland, OH	Engine lift
Engine Sling	OHME 2650000	Learjet Inc.	Engine lift

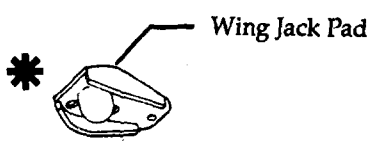
* *Model 31 Series Aircraft only*

** *Model 31/35/36 Series Aircraft only*

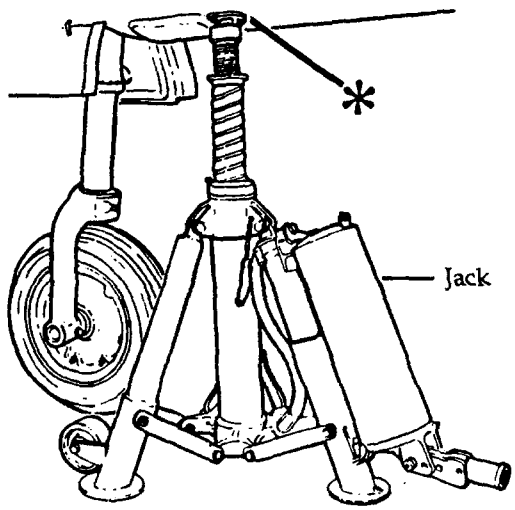


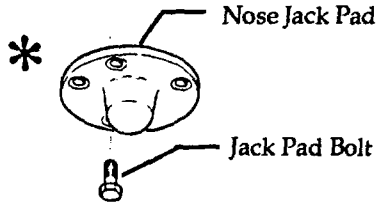
TAIL STAND





WING JACK

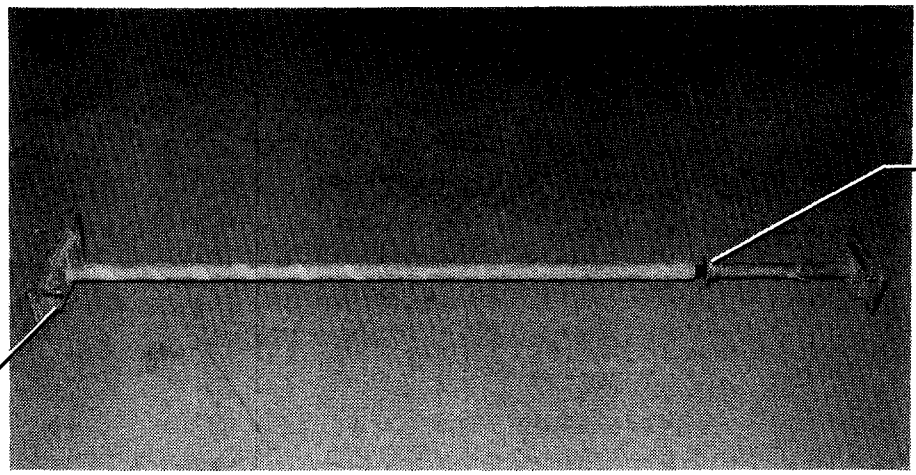




NOSE JACK

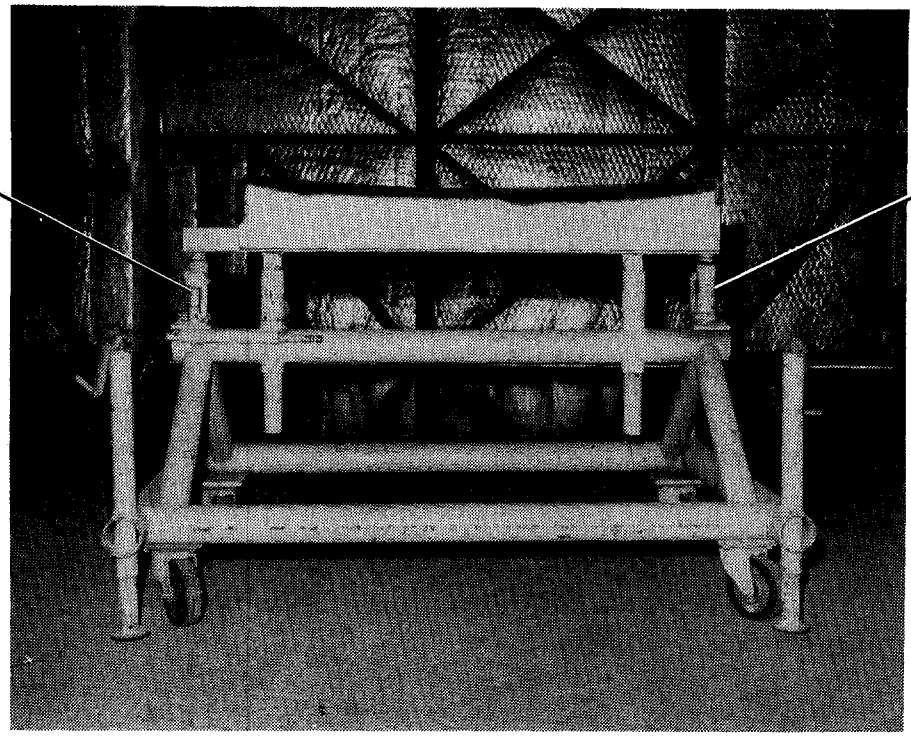
(TYPICAL)

Aircraft Support Equipment
Figure 2 (Sheet 1 of 5)



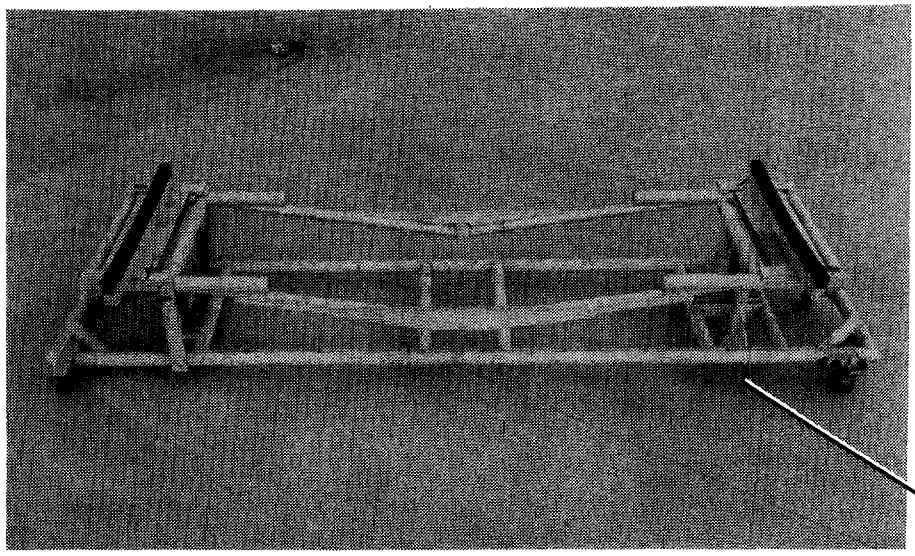
(Install spreader bar between keel beam mounting pads on fuselage)

SPREADER BAR

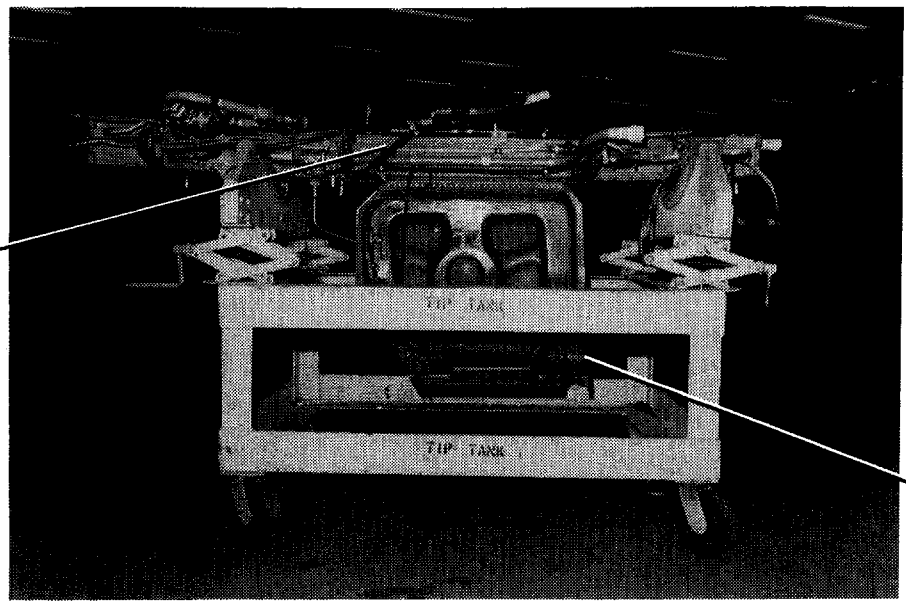


WING TRANSFER DOLLY

Aircraft Support Equipment
Figure 2 (Sheet 2 of 5)

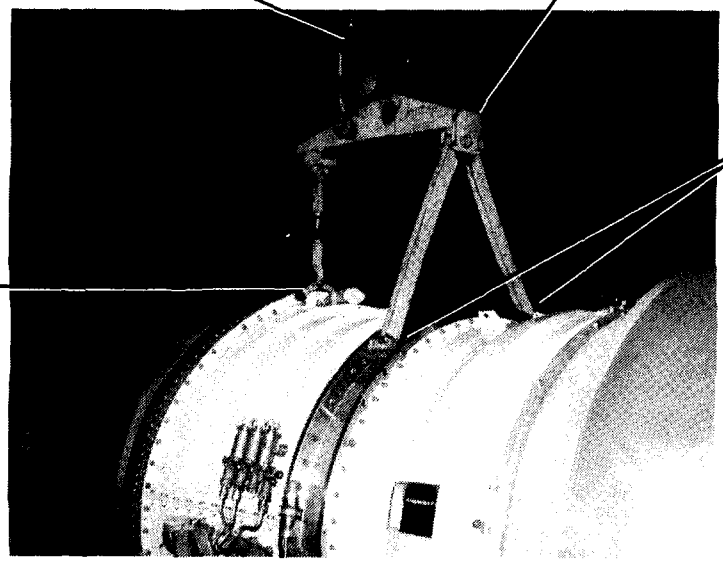


WING MATING DOLLY

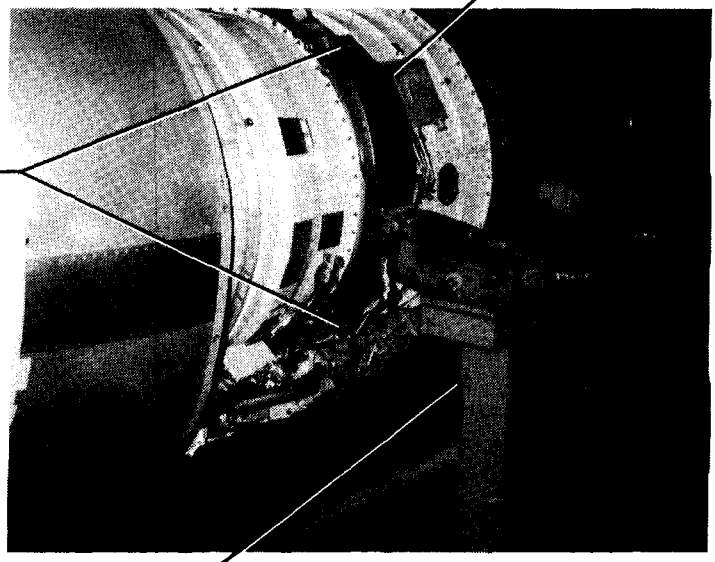


KEEL BEAM SUPPORT DOLLY

Aircraft Support Equipment
Figure 2 (Sheet 3 of 5)



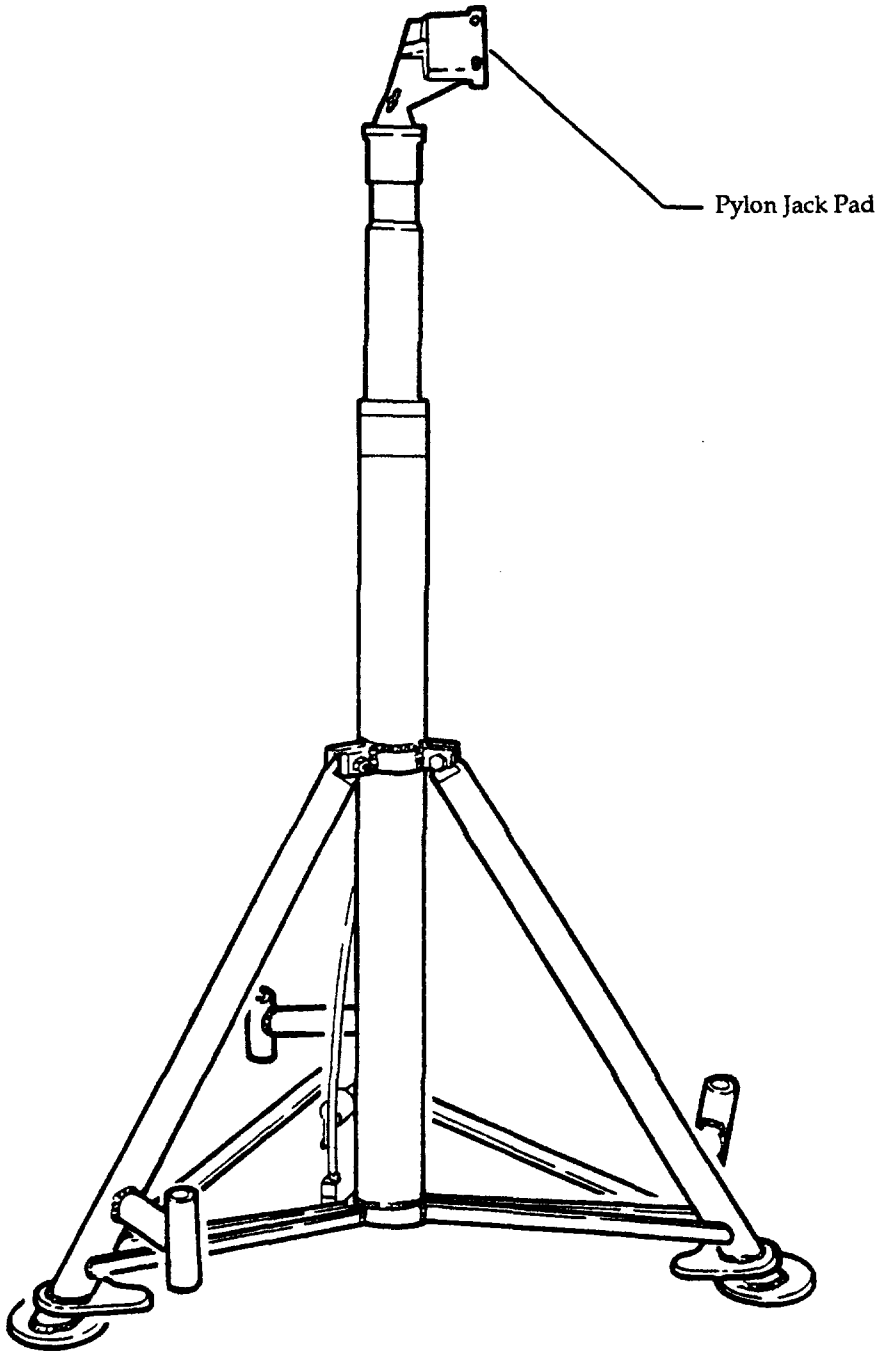
* Two holes are provided for attachment of hoist. The forward hole is for engines without thrust reversers and the aft hole is for engine with thrust reversers.



** Do Not Remove Engine Mount from Aircraft

(TYPICAL)

Aircraft Support Equipment
Figure 2 (Sheet 4 of 5)



PYLON JACK

Aircraft Support Equipment
Figure 2 (Sheet 5 of 5)

1. GENERAL
   A. Many components of the airframe structure are similar in design and fabrication. Typical repairs to these and other items have been compiled in this section to eliminate the duplication of repairs under each applicable component. Repairs in this section apply to the member shown regardless of location on the aircraft structure (except as limited) and will include only those parts or members necessary to show the typical situation.
   B. Typical repairs may be accomplished individually, or combined with other repairs for a major repair. Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   C. It is the responsibility of the aircraft owner/maintenance facility to determine qualifications of maintenance personnel performing inspections and repair procedures as well as to ensure all aircraft log books are properly updated following any maintenance or repair to aircraft structure. As always, a clean environment and good general shop practices shall be exercised at all times.
   D. Prior to, and after performing, any repairs on the aircraft structure, ensure serviceability and reliability of repair. If serviceability and/or reliability of repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information.
   E. Repairs for structure not included in this section does not necessarily indicate that the structure involved is non-repairable, but that the application of a typical repair procedure to theoretical damage has not yet been developed. For repair procedures pertaining to items not covered in this section, refer to that items respective chapter.
   F. If material added in the course of a repair obstructs drainage holes, the holes must be continued through the repaired member unless this is likely to cause structural weakness. If the original holes cannot be used new drainage holes must be made as near as possible to the original ones. The drainage efficiency of a repaired component must be checked during the course of repair. Any drainage holes in the original structure must be duplicated in the replacement structure.
   G. Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. Cracks in any fitting or forging are not allowed. Fittings or forgings with bushings shall be repaired.
   H. All parts fabricated by the repair facility shall be identified for future reference. Marking of parts shall be accomplished in a manner which does not effect the serviceability and reliability of the part.
   I. Classification of Repairs
      (1) Specific Repairs
         (a) Repairs of this type are specifically designed for structure/components named in the appropriate Allowable Wear and Repair Data Index and/or in that structure/components specific chapter.
      (2) Typical Repairs
         (a) Typical repairs are evolved from the characteristics of the materials, with no particular reference to location or class of structure. Repairs of this type may be used singly or in combination to cover a wide variety of damage within the limits given in the appropriate repair figures. Typical repairs must not be used in restricted areas, or for damaged structure for which specific repairs are issued.
      (3) Temporary Repairs
         (a) With the approval of the local airworthiness regulatory authority and Learjet Inc., temporary repairs may be made to allow the aircraft to return to base. The effect of damage on structural strength and airworthiness characteristics such as systems operation must be considered. Temporary repairs must be replaced by permanent repairs before the aircraft is released for normal operational duty.

I. Support of Structure During Repair
   (1) Prior to, and during extensive repair operations involving the removal or replacement of large areas of skin plating, frames, stringers, struts, or other heavily stressed members, it is essential to support the surrounding aircraft structure so that the original contours and relative positions of components are maintained. Support must be sufficient to relieve the load on the damaged area while maintaining the position of the surrounding structure and components.
   (2) Support equipment should preferably be constructed of welded or bolted steel frame, with a suitable cushioning material applied to those parts intended to come into direct contact with the aircraft.
   (3) When damage to an area near a control surface is extensive, it is advisable to remove the control surface and inspect for possible hidden damage. The control surface, or a suitable jig, must be temporarily installed during repair to check the alignment and position of hinge fittings and supporting structure.
   (4) For information pertaining to lifting and shoring refer to the applicable Learjet Maintenance Manual.

J. Checking Alignment
   (1) Before repairs are started, take measurements between reference points on adjacent or opposite parts unaffected by the damage. Compare these measurements with related points on the repair area to determine the extent of distortion. Damage involving major components or large portions of the aircraft requires alignment and/or symmetry checks of the aircraft before and after repairs. Refer to the appropriate section, in this chapter, for additional information pertaining to aircraft alignment and /or symmetry checks.

K. Typical Repair Procedure

   NOTE: If serviceability and/or reliability of any part or repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information.

   (1) Investigate and assess damage.
   (2) Clean up damage to a regular geometric shape.
   (3) Identify material specification, heat treatment and thickness of damaged structure.
   (4) Determine which parts of damaged area are loaded in tension or shear, or in combined tension and shear. (Refer to step L.)
   (5) Select a typical repair applicable to the existing damage.
   (6) Select the proper fasteners which correspond to the type of repair and material being used.
   (7) Lay out fastener pattern, using proper edge distance, pitch and spacing between rows and determine the number of fasteners required.
   (8) Prepare repair members (i.e., doubler and filler) as required.
   (9) Apply surface treatment.
   (10) Attach repair members and seal as required.
   (11) Replace any insulation required.
   (12) Restore aircraft to normal.

L. Structural Loading
(1) Caps and flanges of spars, ribs, frames and beams are considered to be in tension or compression.
(2) Skin panels, together with spar, rib, frame and beam webs, are assumed to be in shear. Additionally, skins may carry tension or compression loads. In the case of compression, loads are assumed to be carried only by a small width of skin along the line of fasteners attaching skin to substructure.
(3) Stringers may be in tension or compression.
(4) If the direction of loading cannot be established, the material must be assumed to be in tension. For purposes of fastener requirement calculation, no distinction is made between tension and compression.

2. LIMITATIONS AND INSPECTIONS

A. Limitations

WARNING: DRILLING, MODIFICATIONS, OR ANY TYPE OF WORK THAT CREATES A BREAK IN THE PRESSURE SECTION IS THE RESPONSIBILITY OF THE OWNER AND/OR MAINTENANCE FACILITY PERFORMING THE WORK. OBTAINING APPROVAL OF THE WORK IS, THEREFORE, THEIR RESPONSIBILITY.

(1) Repairs described in this section are to comply with instructions given in other sections of this manual. Before commencing any repair, refer to the appropriate chapters of this manual for pertinent structural damage information.
(2) Limitations applied to repairs in this section must be followed unless Learjet engineering authority to the contrary is given.
(3) Repairs must perform its/their specific function, such as fuel or air tightness.
(4) Repairs must not interfere with any moving parts.
(5) Repairs must be equal to or greater in strength than the original structure.
(6) Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.

B. Inspections
(1) Following any repair or maintenance procedures on the aircraft structure/components, ensure inspection records pertaining to any specific repair-related procedure are identified, properly documented and closely adhered too.

3. MATERIALS AND PROCESSES

A. Materials
(1) Repair materials and required treatments or processes will be listed in the repair procedure. Material and treatment variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.

B. Processes
(1) Precautions against corrosion, such as chemical surface protective treatments, priming of faying surfaces, and insulating dissimilar metals must be taken. Refer to the appropriate sections, in this chapter, for chemical process and treatment specifications.

C. Fastener Selection
(1) Refer to the appropriate section, in this chapter, for information pertaining to fastener selection.

TYPICAL REPAIR - MAINTENANCE PRACTICES

1. APPLICATION OF LOCTITE
   A. Use Figure 201 as an aid in determining the kind of Loctite to use in a given application. Use only the recommended compounds in their given applications.
   B. Application of Loctite shall be accomplished at temperatures above 60°F to ensure proper curing.

2. APPLYING LOCTITE
   A. Prepare Surface
      (1) Clean all parts to which Loctite is to be applied. Surfaces must be clean and free of dust, grease, condensation, moisture and other contaminants.
      (2) Parts that are plated, hardened, anodized, or passivated must be treated with Locquic primer grade T, prior to applying Loctite sealant or compound. The Locquic primer odor must be completely gone before applying Loctite.
   B. Apply Loctite to Bearings
      (1) If Loctite type has not been specified, selection is to be made from Figure 201.
      (2) Clean mating surfaces with 1,1,1 trichloroethane (MIL-T-81533).
      (3) Apply Loctite evenly to both mating surfaces. Exercise care to keep Loctite out of the bearing. Excessive Loctite may be wiped off with a rag moistened in 1,1,1 trichloroethane (MIL-T-81533).
      (4) Press bearing into bearing housing and keep aligned until Loctite cures. Assembly may be heated for 30 minutes at 180°F to accelerate curing time.
   C. Apply Loctite to Threaded Fasteners
      (1) If Loctite type has not been specified, selection is to be made from Figure 201.
      (2) Clean threaded surfaces with 1,1,1 trichloroethane (MIL-T-81533).
      (3) Apply Loctite to threads by brushing, dipping, tumbling, or running applicator over the threads.

      NOTE: Loctite may be applied to either the nut or bolt; however, for blind hole applications, coat the sides of the blind hole and the first two threads of the male fastener.

      (4) Assemble parts and torque using normal torque.
      (5) Excessive Loctite may be removed using a rag moistened with 1,1,1 trichloroethane (MIL-T-81533).

Application	Loctite Product	Product Color	Gap Filling Ability Inches	Viscosity (cP) Mean	Torque In/Lb Breakaway	Strength Psi Shear	Temp. Range °F	Cure Speed @ Room Temp. on Steel No Primer		Cure Speed @ Room Temp. on Steel With Primer		Recommended Primer
								Fixture	Full	Fixture	Full	
Screw Locking	222 Screwlock E EV EH	Purple	0.003	2,000	40	900	-65 to 300	20 Minutes	24 Hours	5 Minutes	24 Hours	T (Optional)
Nut Locking	242 Nutlock CV	Blue	0.003	2,000	60	1,600	-65 to 300	20 Minutes	24 Hours	5 Minutes	24 Hours	T (Optional)
Stud Locking	271 Studlock A AV AVV	Red	0.005	500	225	2,500	-65 to 300	20 Minutes	24 Hours	5 Minutes	24 Hour	T (Optional)
Bearing and Bushing Retention	RC 680 Bushing Mount Bearing Mount RC 35 RC 40	Green	0.007	1,250	–	Steel 4,000 Aluminum 600	-65 to 300	10 Minutes	24 Hours	5 Minutes	24 Hours	T (Optional)
Plastic Gasket	504 Gasket Eliminator Plastic Gasket ISPG	Orange	0.015	1,000,000 to 2,000,000	–	1,300	-65 to 300	90 Minutes	12 Hours	Not Required		None

LES-1075G

Applications of Loctite
Figure 201

3. INSTALLING OVERSIZE FASTENERS
   A. Oversized Fasteners Installation At Existing Holes
      (1) Determine maximum diameter of existing hole.
      (2) Refer to oversized charts and select closest oversized fastener that will provide a clean hole when drilled to specified tolerances.
      (3) Drill out damaged hole to oversize determined in step A.(2).
      (4) If original hole was cracked, dye penetrant inspect to ensure that crack is removed.
      (5) Apply epoxy primer, and install new fastener of proper grip length.
   B. Limitations
      (1) The number of oversized fasteners must not exceed 20% of original attaching pattern.

HI-LOKS

NOMINAL DIA.	HI-LOK PART NUMBER	ORIGINAL HOLE SIZE	REPLACEMENT		REWORK HOLE SIZE	
			1/64 Oversize	1/32 Oversize	1/64 Oversize	1/32 Oversize
5/32	HL18-5 HL19-5 HL20-5 HL21-5 HL50-5 HL51-5	0.1635 (+0.0010) (-0.0000)		HL18-6 HL19-6 HL20-6 HL21-6 HL50-6 HL51-6	– – – – – –	 0.190 0.187
3/16	HL18-6 HL19-6 HL20-6 HL21-6 HL50-6 HL51-6	0.1895 (+0.0010) (-0.0000)	HL62-6 HL63-6 HL64-6 HL65-6 HL56-6 HL57-6	HL218-6 HL219-6 HL220-6 HL221-6 HL68-6 HL69-6	 0.2031 0.2001 	 0.2187 0.2157
1/4	HL18-8 HL19-8 HL20-8 HL21-8 HL50-8 HL51-8	0.2495 (+0.0010) (-0.0000)	HL62-8 HL63-8 HL64-8 HL65-8 HL56-8 HL57-8	HL218-8 HL219-8 HL220-8 HL221-8 HL68-8 HL69-8	 0.2656 0.2626 	 0.2812 0.2782
5/16	HL18-10 HL19-10 HL20-10 HL21-10 HL50-10 HL51-10	0.3120 (+0.0010) (-0.0000)	HL62-10 HL63-10 HL64-10 HL65-10 HL56-10 HL57-10	HL218-10 HL219-10 HL220-10 HL221-10 HL68-10 HL69-10	 0.3281 0.3251 	 0.3437 0.3407
3/8	HL18-12 HL19-12 HL20-12 HL21-12 HL50-12 HL51-12	0.3745 (+0.0010) (-0.0000)	HL62-12 HL63-12 HL64-12 HL65-12 HL56-12 HL57-12	HL218-12 HL219-12 HL220-12 HL221-12 HL68-12 HL69-12	 0.3906 0.3876 	 0.4062 0.4032
7/16	HL18-14 HL19-14 HL20-14 HL21-14 HL50-14 HL51-14	0.4370 (+0.0010) (-0.0000)	HL62-14 HL63-14 HL64-14 HL65-14 HL56-14 HL57-14	HL218-14 HL219-14 HL220-14 HL221-14 HL68-14 HL69-14	 0.4531 0.4501 	 0.4687 0.4657
1/2	HL18-16 HL19-16 HL20-16 HL21-16	0.4995 (+0.0010) (-0.0000)	HL62-16 HL63-16 HL64-16 HL65-16	HL218-16 HL219-16 HL220-16 HL221-16	 0.5156 0.5126	 0.5312 0.5282

NOTE: • If fastener fit is too tight, enlarge hole within specified tolerance.

• Optional to use HL18 and HL19 oversize fasteners in place of specified HL50 and HL51 (respectively) oversize replacements, provided fasteners meet installation requirements outlined in 51-40-01.

LES-1097AU

Oversized Fasteners Installation At Existing Holes
Figure 202 (Sheet 1 of 5)

COUNTERSINKS FOR 100° FLUSH HEAD HI-LOK BOLTS – STANDARD AND OVERSIZE

NOMINAL BOLT DIA.	FLUSH SHEAR HEAD BOLT			FLUSH TENSION HEAD BOLT		
	STD. C-SK DIA. (Ref) ▷1	1/64 O.S. C-SK DIA. (Ref) ▷1	1/32 O.S. C-SK DIA. (Ref) ▷1	STD. C-SK DIA. (Ref) ▷1	1/64 O.S. C-SK DIA. (Ref) ▷1	1/32 O.S. C-SK DIA. (Ref) ▷1
-5 (5/32)	0.2588	–	–	0.3280	–	–
-6 (3/16)	0.2991	0.2991	0.3278	0.3789	0.3789	0.3789
-8 (1/4)	0.3923	0.3923	0.4235	0.5042	0.5042	0.5042
-10 (5/16)	0.4710	0.4710	0.5026	0.6311	0.6311	0.6311
-12 (3/8)	0.5579	0.5579	0.5891	0.7580	0.7580	0.7580
-14 (7/16)	0.6650	0.6650	0.6962	0.8848	0.8848	0.8848
-16 (1/2)	0.7510	0.7510	0.7822	1.0104	1.0104	1.0104

▷1 The head height of all Hi-Lok bolts common to an aerodynamic surface must meet the installation requirements outlined in 51-04-04. The head height of all Hi-Lok bolts not common to an aerodynamic surface can deviate plus or minus 0.010 inch height from the adjacent surface.

NOMINAL DIA.	BOLT PART NUMBER	REPLACEMENT		REWORK HOLE SIZE	
		1/64 Over	1/32 Over	1/64 Over	1/32 Over
3/16	NAS464-3	NAS2903	NAS3003	0.2031/0.2001	0.2187/0.2157
1/4	NAS464-4	NAS2904	NAS3004	0.2656/0.2626	0.2812/0.2782
5/16	NAS464-5	NAS2905	NAS3005	0.3281/0.3251	0.3437/0.3407
3/8	NAS464-6	NAS2906	NAS3006	0.3906/0.3876	0.4062/0.4032
7/16	NAS464-7	NAS2907	NAS3007	0.4531/0.4501	0.4687/0.4657
1/2	NAS464-8	NAS2908	NAS3008	0.5156/0.5126	0.5312/0.5282
3/16	NAS563	NAS2903	NAS3003	0.2031/0.2001	0.2187/0.2157
1/4	NAS654	NAS2904	NAS3004	0.2656/0.2626	0.2812/0.2782
5/16	NAS655	NAS2905	NAS3005	0.3281/0.3251	0.3437/0.3407
3/8	NAS656	NAS2906	NAS3006	0.3906/0.3876	0.4062/0.4032
7/16	NAS657	NAS2907	NAS3007	0.4531/0.4501	0.4687/0.4657
1/2	NAS658	NAS2908	NAS3008	0.5156/0.5126	0.5312/0.5282
3/16	NAS1153	NAS1703	NAS1603	0.2031/0.2001	0.2187/0.2157
1/4	NAS1154	NAS1704	NAS1604	0.2656/0.2626	0.2812/0.2782
5/16	NAS1155	NAS1705	NAS1605	0.3281/0.3251	0.3437/0.3407
3/8	NAS1156	NAS1706	NAS1606	0.3906/0.3876	0.4062/0.4032
7/16	NAS1157	NAS1707	NAS1607	0.4531/0.4501	0.4687/0.4657
1/2	NAS1158	NAS1708	NAS1608	0.5156/0.5126	0.5312/0.5282
5/32	B100-T5	–	OB100-T5	–	0.185/0.182
	BP-T5	–	OBP-T5	–	0.185/0.182
3/16	B100-T6	–	OB100-T6	–	0.220/0.217
	BP-T6	–	OBP-T6	–	0.220/0.217
1/4	B100-T8	–	OB100-T8	–	0.281/0.278
	BP-T8	–	OBP-T8	–	0.281/0.278
#8	NAS1202	–	NAS1203	–	0.190/0.187
3/16	NAS1203	NAS1703R	NAS1603R	0.2031/0.2001	0.2187/0.2157
1/4	NAS1204	NAS1704R	NAS1604R	0.2656/0.2626	0.2812/0.2782
5/16	NAS1205	NAS1705R	NAS1605R	0.3281/0.3251	0.3437/0.3407
3/8	NAS1206	NAS1706R	NAS1606R	0.3906/0.3876	0.4062/0.4032
7/16	NAS1207	NAS1707R	NAS1607R	0.4531/0.4501	0.4687/0.4657
1/2	NAS1208	NAS1708R	NAS1608R	0.5156/0.5126	0.5312/0.5282
3/16	NAS1503	NAS1703	NAS1603	0.2031/0.2001	0.2187/0.2157
1/4	NAS1504	NAS1704	NAS1604	0.2656/0.2626	0.2812/0.2782
5/16	NAS1505	NAS1705	NAS1605	0.3281/0.3251	0.3437/0.3407
3/8	NAS1506	NAS1706	NAS1606	0.3906/0.3876	0.4062/0.4032
7/16	NAS1507	NAS1707	NAS1607	0.4531/0.4501	0.4687/0.4657
1/2	NAS1508	NAS1708	NAS1608	0.5156/0.5126	0.5312/0.5282
3/16	NAS2803	NAS1703	NAS1603	0.2031/0.2001	0.2187/0.2157
1/4	NAS2804	NAS1704	NAS1604	0.2656/0.2626	0.2812/0.2782
5/16	NAS2805	NAS1705	NAS1605	0.3281/0.3251	0.3437/0.3407
3/8	NAS2806	NAS1706	NAS1606	0.3906/0.3876	0.4062/0.4032
7/16	NAS2807	NAS1707	NAS1607	0.4531/0.4501	0.4687/0.4657
1/2	NAS2808	NAS1708	NAS1608	0.5156/0.5126	0.5312/0.5282

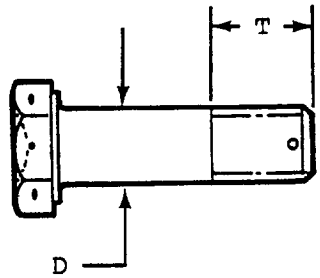
S-129

Oversized Fasteners Installation At Existing Holes
Figure 202 (Sheet 3 of 5)

BOLT PART NUMBER	THREAD UNJF-3A (EXCEPT AS NOTED)	"D" DIAMETER		"T" REF
		MAX.	MIN.	
NAS2903	0.1900-32	0.2026	0.2016	0.338
NAS2904	0.2500-28	0.2651	0.2641	0.425
NAS2905	0.3125-24	0.3276	0.3266	0.469
NAS2906	0.3750-24	0.3901	0.3891	0.578
NAS2907	0.4375-20	0.4526	0.4516	0.594
NAS2908	0.5000-20	0.5151	0.5141	0.735
NAS2909	0.5625-18	0.5771	0.5761	0.840
NAS2910	0.6250-18	0.6396	0.6386	0.902
NAS2912	0.7500-16	0.7646	0.7636	1.041
NAS2914	0.8750-14	0.8896	0.8886	1.184
NAS2916	1.000-12	1.0146	1.0136	1.309
NAS2916A	1.0000-14*	1.0146	1.0136	1.291
NAS2918	1.1250-12	1.1396	1.1381	1.458
NAS2920	1.2500-12	1.2646	1.2631	1.646

*NS-3A

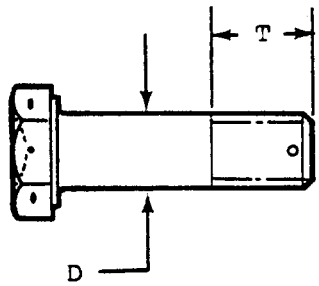
Bolt, Shear – Hexagon Head, 0.0156 Oversize Shank, Alloy Steel 160-180 KSI Ultimate Tensile



BASIC DOCUMENT NUMBER	THREAD UNJF-3A (EXCEPT AS NOTED)	"D" DIAMETER		"T" REF
		MAX.	MIN.	
NAS3003	0.1900-32	0.2182	0.2172	0.338
NAS3004	0.2500-28	0.2807	0.2797	0.425
NAS3005	0.3125-24	0.3432	0.3422	0.469
NAS3006	0.3750-24	0.4057	0.4047	0.578
NAS3007	0.4375-20	0.4682	0.4672	0.594
NAS3008	0.5000-20	0.5307	0.5297	0.735
NAS3009	0.5625-18	0.5927	0.5917	0.840
NAS3010	0.6250-18	0.6552	0.6542	0.902
NAS3012	0.7500-16	0.7802	0.7792	1.041
NAS3014	0.8750-14	0.9052	0.9042	1.184
NAS3016	1.0000-12	1.0302	1.0292	1.309
NAS3016A	1.0000-14*	1.0302	1.0292	1.291
NAS3018	1.1250-12	1.1552	1.1537	1.458
NAS3020	1.2500-12	1.2802	1.2787	1.646

*NS-3A

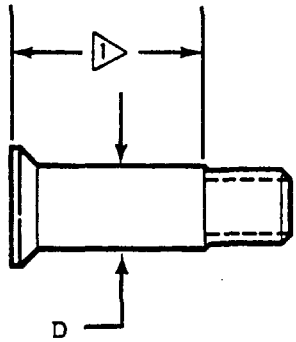
Bolt, Shear – Hexagon Head, 0.0312 Oversize Shank, Alloy Steel 160-180 KSI Ultimate Tensile



Oversized Fasteners Installation At Existing Holes
Figure 202 (Sheet 4 of 5)

PART NUMBER (NONLOCKING & UNDRILLED) 0.0156 OVERSIZE	NOMINAL THREAD SIZE	"D" DIA., 0.0156 OVERSIZE SHANK MAX.	MIN.
NAS4703-*[1]	0.1900-32	0.2026	0.2016
NAS4704-*[1]	0.2500-28	0.2651	0.2641
NAS4704J-*[1]	0.2500-28	0.2651	0.2641
NAS4705-*[1]	0.3125-24	0.3276	0.3266
NAS4706-*[1]	0.3750-24	0.3901	0.3891
NAS4707-*[1]	0.4375-20	0.4526	0.4516
NAS4708-*[1]	0.5000-20	0.5151	0.5141
NAS4709-*[1]	0.5625-18	0.5771	0.5761
NAS4710-*[1]	0.6250-18	0.6396	0.6386
NAS4712-*[1]	0.7500-16	0.7646	0.7636
NAS4714-*[1]	0.8750-14	0.8896	0.8886
NAS4716-*[1]	1.0000-12	1.0146	1.0136
0.0312 OVERSIZE		**"D" DIA., 0.0312 OVERSIZE SHANK**	
NAS4703-*[1]	0.1900-32	0.2182	0.2172
NAS4704-*[1]	0.2500-28	0.2651	0.2797
NAS4704J-*[1]	0.2500-28	0.2807	0.2797
NAS4705-*[1]	0.3125-24	0.3432	0.3422
NAS4706-*[1]	0.3750-24	0.4057	0.4047
NAS4707-*[1]	0.4375-20	0.4682	0.4672
NAS4708-*[1]	0.5000-20	0.5307	0.5297
NAS4709-*[1]	0.5625-18	0.5927	0.5917
NAS4710-*[1]	0.6250-18	0.6552	0.6542
NAS4712-*[1]	0.7500-16	0.7802	0.7792
NAS4714-*[1]	0.8750-14	0.9052	0.9042
NAS4716-*[1]	1.0000-12	1.0302	1.0292

[1] Grip dash number in 0.0625-inch increments



14-201A

Oversized Fasteners Installation At Existing Holes
Figure 202 (Sheet 5 of 5)

4. INSTALLING BUSHINGS IN OVERSIZED HOLES
   A. Standard Bushings Installation At Oversized Holes
      (1) Determine the original hole ID (bore) of damaged part.
      (2) Refer to standard bushing chart and select bushing with the closest ID (bore) of the original hole size.

      NOTE: Length of required bushing will vary with application. Standard bushing may be cut to length and deburred when necessary.

      (3) Refer to standard bushing chart, determine the hole size (steel or aluminum) to match the bushing selected in step A. (2).
      (4) Drill out damaged hole to hole size determined in step A. (3).
      (5) Install bushing with wet epoxy primer.
   B. Limitations
      (1) Rework of oversized holes, using the procedures specified in paragraph A., are limited to those specified in the Allowable Wear and Repair Data figures in 51-71-00.

BUSHING				HOLE			
				STEEL		ALUMINUM	
SIZE DASH NO.	NOMINAL BORE	OUTSIDE DIAMETER		HOLE DIAMETER		HOLE DIAMETER	
		MAXIMUM	MINIMUM	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
3	0.1900	0.3136	0.3131	0.3123	0.3129	0.3123	0.3129
4	0.2500	0.3761	0.3756	0.3748	0.3754	0.3748	0.3754
5	0.3125	0.4386	0.4381	0.4373	0.4379	0.4373	0.4379
6	0.3750	0.5013	0.5006	0.4998	0.5004	0.4997	0.5003
7	0.4375	0.5638	0.5631	0.5622	0.5629	0.5622	0.5628
8	0.5000	0.6265	0.6257	0.6248	0.6255	0.6247	0.6254
9	0.5625	0.6892	0.6882	0.6873	0.6880	0.6872	0.6879
10	0.6250	0.8142	0.8132	0.8122	0.8130	0.8120	0.8129
11	0.6875	0.8767	0.8757	0.8747	0.8755	0.8745	0.8754
12	0.7500	0.9393	0.9383	0.9372	0.9381	0.9370	0.9379
14	0.8750	1.0648	1.0638	1.0627	1.0636	1.0625	1.0634
16	1.0000	1.1898	1.1888	1.1875	1.1885	1.1873	1.1883
18	1.1250	1.3148	1.3138	1.3125	1.3135	1.3122	1.3132
20	1.2500	1.4399	1.4389	1.4375	1.4385	1.4372	1.4382

Interference Fit Hole Sized For NAS 75, 76, 77, 537, 538 (BACB28Y, U, W, X)

Standard Bushings Installation for Oversized Holes
Figure 203

REAMER SIZE	TOL	REAMER SIZE	TOL	REAMER SIZE	TOL	REAMER SIZE	TOL
0.0625	+0.0010	0.2640*	+0.0010	0.4520*	+0.0020	1.0938	+0.0040
0.0730	-0.0010	0.2656	-0.0010	0.4531	-0.0020	1.1250	-0.0020
0.0937		0.2670*		0.4670*		1.1562	
0.1220		0.2770*		0.4677		1.1875	
0.1230		0.2802		0.4688		1.2188	
0.1240		0.2810		0.4697		1.2500	
0.1250		0.2812		0.4844		1.2812	
0.1260		0.2822		0.4980*		1.3125	
0.1270		0.2969		0.4990		1.3438	
0.1280		0.3080*		0.5000		1.3750	
0.1406		0.3090*		0.5140*		1.4062	
0.1542		0.3105*		0.5156		1.4375	
0.1552		0.3115		0.5300*		1.4688	
0.1562		0.3120*	+0.0010	0.5312		1.5000	
0.1719		0.3125	-0.0010	0.5678		1.5625	
0.1850*		0.3135	+0.0020		+0.0020		
0.1855		0.3150*	-0.0020	0.5625	-0.0020	1.5938	
0.1865		0.3240*		0.5781	+0.0030	1.6250	
0.1870*		0.3270*		0.5938	-0.0020	1.6562	
0.1875		0.3281		0.6094		1.6875	
0.1880		0.3290*		0.6250		1.7188	
0.1885		0.3400*		0.6406		1.7500	
0.1890		0.3427		0.6542		1.7812	
0.1895		0.3430*		0.6719		1.8125	
0.1900		0.3438		0.6875		1.8438	
0.1910		0.3447		0.7031		1.8750	
0.1920		0.3450*		0.7188		1.9062	
0.1930		0.3594		0.7344		1.9375	
0.1990		0.3710*		0.7500		1.9688	
0.2020*		0.3730*		0.7656		2.0000	
0.2031		0.3735*		0.7812		2.0625	
0.2150*		0.3740		0.7969		2.2500	
0.2180*		0.3750		0.8125		2.3125	
0.2188		0.3760		0.8281		2.3750	+0.0040
0.2190*		0.3890*		0.8438		2.5000	-0.0020
0.2344		0.3906		0.8594			
0.2450*		0.3920*		0.8750			
0.2460*		0.4020*		0.8906			
0.2475*		0.4050*		0.9062			
0.2480		0.4052		0.9219			
0.2485*		0.4062		0.9375			
0.2490		0.4070*		0.9631			
0.2500		0.4072		0.9688			
0.2510		0.4219		0.9844	+0.0030		
0.2520		0.4360*		1.0000	-0.0020		
0.2530*		0.4364		1.0156	+0.0040		
0.2570	+0.0010	0.4375	+0.0020	1.0312	-0.0020		
0.2620*	-0.0010	0.4385	-0.0020	1.0469			
				1.0625			

*Piloted reamers cannot be used.

Standard Reamer Size
Figure 204

PRESS FITS FOR BUSHINGS IN ALUMINUM AND MAGNESIUM

HOLE DIAMETER	TOLERANCE				INTERFERENCE	
	HOLE		BUSHING (O.D.)			
	Max.	Min.	Max.	Min.	Max.	Min.
0.0000 thru 0.2500	+0.0005	0.0000	+0.0012	+0.0007	0.0012	0.0002
0.2501 thru 0.5000	+0.0006	0.0000	+0.0015	+0.0009	0.0015	0.0003
0.5001 thru 0.7500	+0.0006	0.0000	+0.0017	+0.0011	0.0017	0.0005
0.7501 thru 1.0000	+0.0007	0.0000	+0.0020	+0.0013	0.0020	0.0006
1.0001 thru 1.2500	+0.0007	0.0000	+0.0023	+0.0015	0.0023	0.0008
1.2501 thru 1.5000	+0.0008	0.0000	+0.0025	+0.0017	0.0025	0.0009
1.5001 thru 1.7500	+0.0008	0.0000	+0.0027	+0.0019	0.0027	0.0011
1.7501 thru 2.0000	+0.0009	0.0000	+0.0030	+0.0021	0.0030	0.0012
2.0001 thru 2.2500	+0.0009	0.0000	+0.0032	+0.0022	0.0032	0.0013
2.2501 thru 2.5000	+0.0009	0.0000	+0.0034	+0.0024	0.0034	0.0015
2.5001 thru 2.7500	+0.0009	0.0000	+0.0036	+0.0026	0.0036	0.0017
2.7501 thru 3.0000	+0.0010	0.0000	+0.0038	+0.0028	0.0038	0.0018
3.0001 thru 3.2500	+0.0010	0.0000	+0.0040	+0.0030	0.0040	0.0020
3.2501 thru 3.5000	+0.0010	0.0000	+0.0042	+0.0032	0.0042	0.0022
3.5001 thru 3.7500	+0.0010	0.0000	+0.0044	+0.0034	0.0044	0.0024
3.7501 thru 4.0000	+0.0011	0.0000	+0.0046	+0.0036	0.0046	0.0025

PRESS FITS FOR BUSHINGS IN STEEL

HOLE DIAMETER	TOLERANCE				INTERFERENCE	
	HOLE		BUSHING (O.D.)			
	Max.	Min.	Max.	Min.	Max.	Min.
0.0000 thru 0.2500	+0.0005	0.0000	+0.0011	+0.0007	0.0011	0.0002
0.2501 thru 0.5000	+0.0006	0.0000	+0.0014	+0.0008	0.0014	0.0003
0.5001 thru 0.7500	+0.0007	0.0000	+0.0016	+0.0010	0.0016	0.0003
0.7501 thru 1.0000	+0.0007	0.0000	+0.0018	+0.0011	0.0018	0.0004
1.0001 thru 1.2500	+0.0008	0.0000	+0.0020	+0.0013	0.0020	0.0005
1.2501 thru 1.5000	+0.0008	0.0000	+0.0022	+0.0014	0.0022	0.0006
1.5001 thru 1.7500	+0.0008	0.0000	+0.0024	+0.0015	0.0024	0.0007
1.7501 thru 2.0000	+0.0009	0.0000	+0.0026	+0.0017	0.0026	0.0008
2.0001 thru 2.2500	+0.0009	0.0000	+0.0027	+0.0018	0.0027	0.0009
2.2501 thru 2.5000	+0.0009	0.0000	+0.0029	+0.0019	0.0029	0.0010
2.5001 thru 2.7500	+0.0010	0.0000	+0.0031	+0.0021	0.0031	0.0011
2.7501 thru 3.0000	+0.0010	0.0000	+0.0032	+0.0022	0.0032	0.0012
3.0001 thru 3.2500	+0.0010	0.0000	+0.0034	+0.0024	0.0034	0.0014
3.2501 thru 3.5000	+0.0010	0.0000	+0.0035	+0.0025	0.0035	0.0015
3.5001 thru 3.7500	+0.0010	0.0000	+0.0036	+0.0026	0.0036	0.0016
3.7501 thru 4.0000	+0.0011	0.0000	+0.0038	+0.0028	0.0038	0.0017

Press Fit Hole Size for Bushings
Figure 205

5. APPLICATION AND USE OF STRUCTURAL ADHESIVES

WARNING: ROOM TEMPERATURE ADHESIVES (REGARDLESS OF CURE TIME) SHALL NOT BE USED TO SECURE ANY PRIMARY STRUCTURE.

A. The area in which adhesives are used and the application of the adhesive is specified in the applicable sections of the basic Learjet maintenance manual.

Learjet

TEMPORARY REVISION NO. 51-2

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to 51-70-01, page 201, dated Jun 1/95, and retain until further notice.

REASON: To clarify dent repairs to wing leading edge.

INSTRUCTIONS: Revise paragraph **1. MINOR DENT REPAIR**, as follows:

AIRCRAFT SKIN DENTS - TYPICAL REPAIR

1. MINOR DENT REPAIR
   A. Minor dents are dents in the aircraft skin or sub-structure which do not exceed the limits specified in the Allowable Damage section of each chapter.
   B. Minor Dent Repairs
      (1) Dents in the aircraft skin, where access to the dented area is restricted, can be repaired using aerodynamic fairing compound. (Refer to paragraph 3., for application of aerodynamic fairing compound.)
      (2) Dents in the aircraft skin, where accessible, may be repaired by bumping the skin back into contour. The area shall be inspected to ensure that the painted surface has not fractured. Refinish painted surface, if required. (Refer to the appropriate Learjet Maintenance Manual, Chapter 20, for painting procedures.)
      (3) Dents in the engine nacelle inlet areas shall be repaired in accordance with the procedures in Chapter 54 of this manual.

      WARNING: **DENT REPAIRS ACCOMPLISHED ON THE WING LEADING EDGE SHALL BE FLIGHT TESTED TO VERIFY AERODYNAMIC ACCEPTABILITY AND STALL SPEEDS. (REFER TO THE BASIC LEARJET MAINTENANCE MANUAL OR SERVICE MANUAL FOR APPLICABLE STALL WARNING FAULT ISOLATION PROCEDURES).**

      (4) Dents in the wing, vertical stabilizer, and the horizontal stabilizer shall be bumped back into contour.

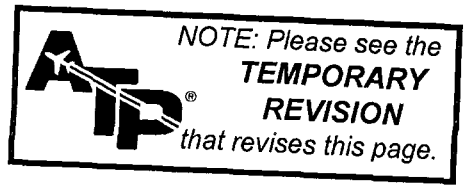
2. MAJOR DENT REPAIR
   A. Major dents are dents in the aircraft skin or sub-structure which exceed the limits specified in the Allowable Damage section of each chapter.
   B. Major Dent Repair
      (1) Damaged areas shall be removed and repaired using the typical repairs as specified in 51-70-02.
      (2) Leading edges of the wing, vertical stabilizer, and the horizontal stabilizer shall be replaced.

AIRCRAFT SKIN DENTS - TYPICAL REPAIR

1. MINOR DENT REPAIR
   A. Minor dents are dents in the aircraft skin or sub-structure which do not exceed the limits specified in the Allowable Damage section of each chapter.
   B. Minor Dent Repairs
      (1) Dents in the aircraft skin, where access to the dented area is restricted, can be repaired using aerodynamic fairing compound. (Refer to paragraph 3., for application of aerodynamic fairing compound.)
      (2) Dents in the aircraft skin, where accessible, may be repaired by bumping the skin back into contour. The area shall be inspected to ensure that the painted surface has not fractured. Refinish painted surface, if required. (Refer to the appropriate Learjet Maintenance Manual or Service Manual for painting procedures.)
      (3) Dents in the engine nacelle inlet areas shall be repaired in accordance with the procedures in Chapter 54 of this manual.
      (4) Dents in the leading edge of the wing, vertical stabilizer, and the horizontal stabilizer shall be bumped back into contour.

      WARNING: DENT REPAIRS ACCOMPLISHED ON THE WING LEADING EDGE SHALL BE FLIGHT TESTED TO VERIFY AERODYNAMIC ACCEPTABILITY AND STALL SPEEDS. (REFER TO THE BASIC LEARJET MAINTENANCE MANUAL OR SERVICE MANUAL FOR APPLICABLE PROCEDURES).

2. MAJOR DENT REPAIR
   A. Major dents are dents in the aircraft skin or sub-structure which exceed the limits specified in the Allowable Damage section of each chapter.
   B. Major Dent Repair
      (1) Damaged areas shall be removed and repaired using the typical repairs as specified in 51-70-02.
      (2) Leading edges of the wing, vertical stabilizer, and the horizontal stabilizer shall be replaced.



3. APPLICATION OF AERODYNAMIC FAIRING COMPOUND
   A. Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER*	USE
White Streak Plastic Solder and Cream Hardener		16522	Aerodynamic filler
Filler	DX-999	47695	Aerodynamic filler
Epocast	H-1337-B-L (resin) 9615A (hardener)	99384	Aerodynamic filler
Sealant	Pro-Seal 890 (MIL-S-8802) Class B-1/2 Class B-2 Class B-4	Products Research & Chemical Corp.	Aerodynamic filler
Filler	C42 No. 6372	16772	Aerodynamic filler
Filler	EC-1751	94961	Aerodynamic filler
Masking Tape		Commercially available	General
Methyl Ethyl Ketone (MEK)		Commercially available	General
Putty Knife		Commercially available	General
Lint-Free Cloth		Commercially available	General
Abrasive Paper	No. 220 or finer	Commercially available	General
Abrasive Paper	No. 320 or finer	Commercially available	General
Abrasive Pad (Nylon Wool Type)		Commercially available	General
Blow Gun and Tip	DGD501	17431	General
Scales (Calibrated in Grams)		Commercially available	General
Abrasive Paper	No. 80	Commercially available	General

*Refer to the Introduction Section of this manual for lists of manufacturers.

B. Filler Preparation
(1) White Streak Plastic Solder shall be mixed with the cream hardener at a ratio of one ounce hardener to three pounds of base compound.
(2) Ditzler DX-999 plastic shall be mixed with the accelerator at a ratio of one ounce hardener to three pounds of base compound.
(3) Pro-Seal 890 (MIL-S-8802) shall be mixed per manufacturer's recommendations. The ratio will vary with different classes of sealant to be mixed.
(4) EC-1751 shall be mixed at a ratio of two parts gray and one part amber by weight or three parts grey and two parts amber by volume.

NOTE: When mixing fairing compounds, a folding action shall be used. Avoid trapping air in compound. Do not add resins, thinners, or other foreign materials to mixture.

C. Surface Preparation

NOTE: The aircraft structure temperature shall be 65°F (18°C) or above when applying aerodynamic filler in order to promote adhesion and to prevent moisture condensation.

(1) Remove all dirt, dust, grease, pencil marks, paint, or any other surface contaminants from area to be filled and for a distance of one inch along each side of area to be filled.

CAUTION: USE EXTREME CARE WHEN REMOVING SURFACE OXIDES TO PREVENT EXCESSIVE REMOVAL OF METAL.

(2) Use #80 grit abrasive paper to remove surface oxides and wash with MEK. Dry surface thoroughly with lint-free cloth.

D. Filler Application

NOTE: The aerodynamic filler shall be applied directly to the cleaned metal. No primer of any type shall be applied or allowed to remain prior to application of the filler.

(1) Mask off area to be sealed a distance of one inch along each side.
(2) Apply filler with a putty knife.
(3) Build area to be sealed to a maximum of 1/8-inch thickness paper application. Allow first application to cure completely.
(4) Sand hardened surface and blow clean with clean, dry air. Do not use liquid cleaner.
(5) Apply second application of filler and allow to cure completely.
(6) Sand hardened surface with #220 abrasive paper to remove excess filler.
(7) Sand hardened surface with #320 abrasive paper until smooth and flush with adjacent areas. Feather all edges and exercise care to prevent abrasion of adjacent metal surfaces.
(8) Blow clean dry air over surface until clean. Do not use a liquid cleaner. Direct air perpendicular to the surface to remove dust from pin holes.
(9) Apply a thin layer of filler to fill pin holes. Repeat sanding procedure.
(10) Refinish painted surface. (Refer to the appropriate Learjet Maintenance Manual, Chapter 20, for painting procedures.)

TEMPORARY REVISION NO. 51-6

MANUAL AFFECTED: Learjet 20/30 Series Structural Repair Manual.

FILING INSTRUCTIONS: Insert adjacent to 51-70-02, page 201, dated May 15/92 and retain until further notice.

REASON: To incorporate procedures for treatment of cracks.

INSTRUCTIONS: Revise as follows:

AIRCRAFT SKIN - TYPICAL REPAIRS

1. Skin Repairs

A. Repair Instruction (See Figures 201 thru 203.)
(1) Repair procedures are given in this section for repair of skins of the pressure cabin, and skins outside of the pressure cabin. In the pressure cabin a staggered double row of rivets is required when the repair is not supported or made rigid by sub-structure.
(2) Repair material and gage must be the same as original.
(3) Rivet spacing shall be compatible with the original rivet pattern. As a general rule, rivet spacing shall be six (6) times the diameter of the rivets.
(4) Drill all parts in place, remove parts, and remove burrs. (Refer to 51-40-02 for skin trim location determination.)
(5) Refer to 51-30-04 for protective treatment of metal.
(6) Apply sealant as required when the repair may affect the cabin pressure capabilities. Refer to 51-30-02 for sealing procedures.

2. Treatment of Cracks

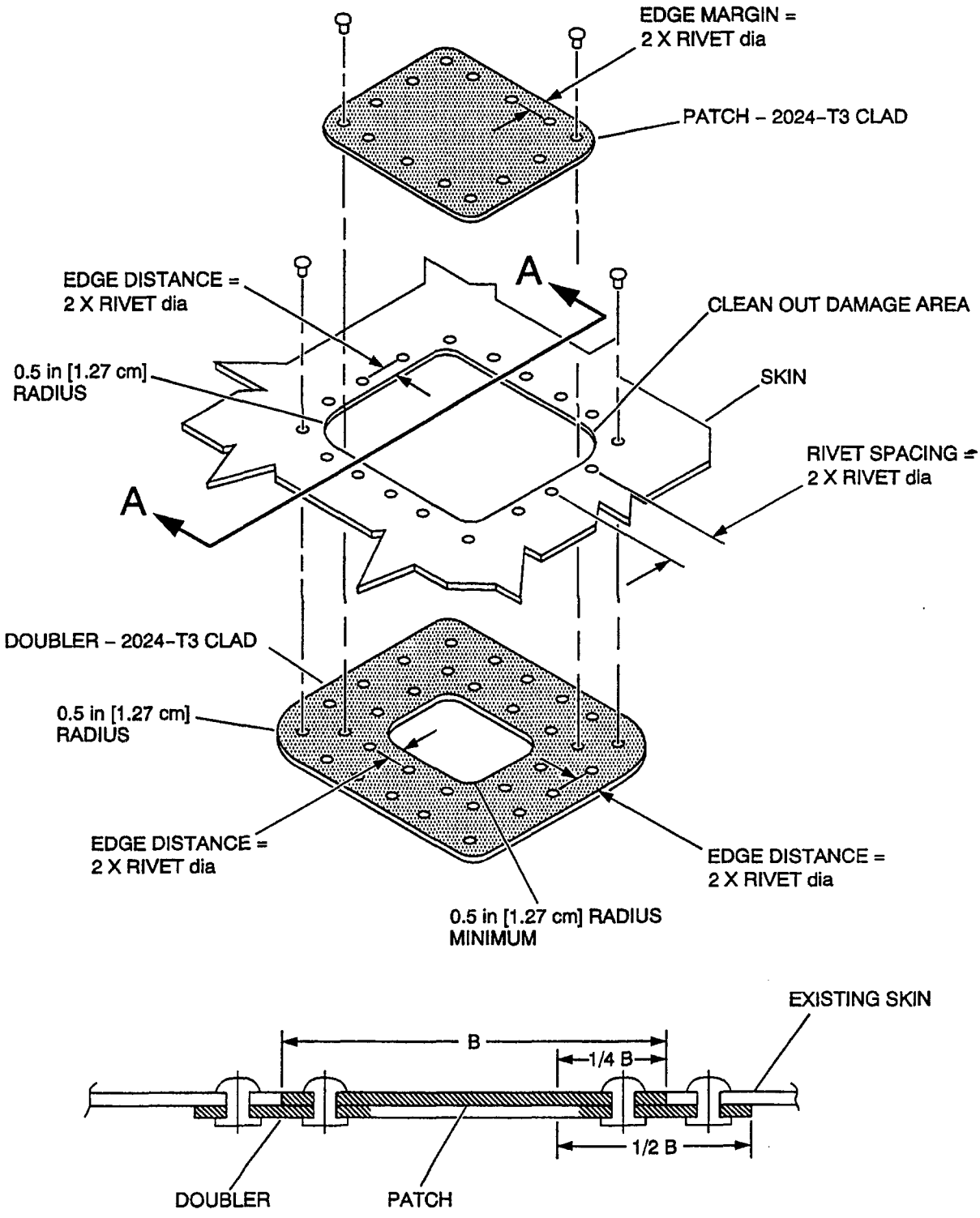
CAUTION: DO NOT STOP-DRILL CRACKS IN THE PRIMARY STRUCTURE UNLESS THIS IS PERMITTED IN THE ALLOWABLE DAMAGE LIMITS. (REFER TO 51-70-00.) CRACKS IN THE PRIMARY STRUCTURE THAT ARE LARGER THAN PERMITTED IN THE ALLOWABLE DAMAGE LIMITS CAN CAUSE THE PART TO HAVE LESS THAN THE NECESSARY STRENGTH.

A. Stop-Drill Cracks (Refer to Figure 204.)
(1) Perform a liquid-penetrant inspection to accurately find the end of the crack. (Refer to the Learjet 20/30/55 Series Nondestructive Inspection Manual.)
(2) Stop-drill cracks.
(a) Use a #40 (0.098 inch [0.250 cm]) diameter drill for metal thickness of 0.032 [0.081 cm] or less.
(b) Use a #30 (0.128 inch [0.325 cm]) diameter drill for metal thickness greater than 0.032 [0.081 cm].
(3) Deburr the hole and remove all unwanted material.
(4) Perform liquid-penetrant inspection to make sure that the hole has contained the end of the crack. (Refer to the Learjet 20/30/55 Series Nondestructive Inspection Manual.)
(5) Apply surface treatment protection to the bare metal surfaces. (Refer to 51-30-04.)

(6) Calculate the total length of the crack after it is stop-drilled (include the hole diameter). Make sure that the total crack damage is less than the maximum permitted in the allowable damage limit. (Refer to 51-70-00.)

NOTE: Where a crack is in one part of a riveted assembly, remove the fasteners and put in a temporary shield made from thin stainless steel sheet. This will prevent damage to the adjacent parts that are behind.

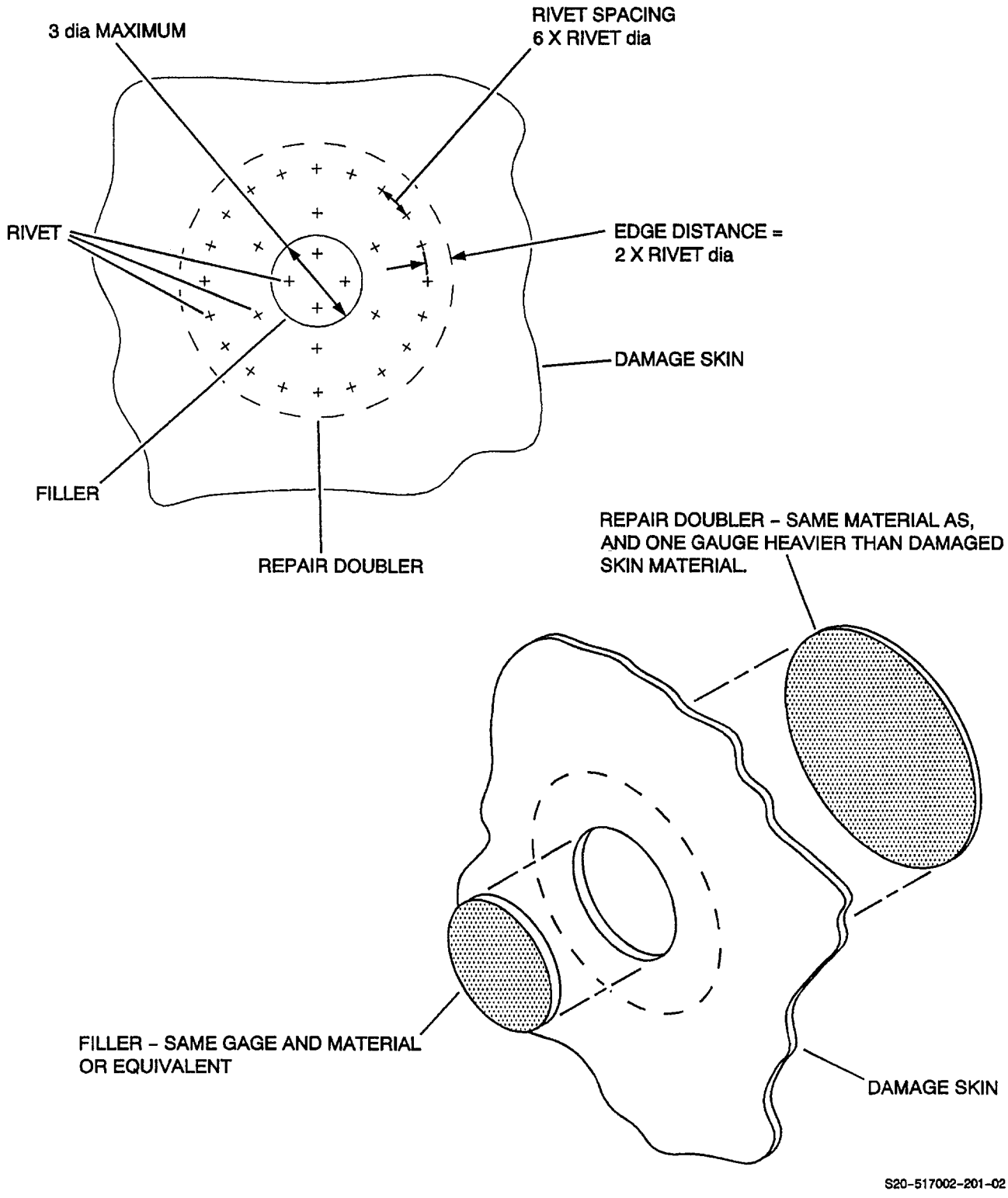
(7) Where moisture can go into stop-drill holes, seal the area with sealant or with surface filler. (Refer to 51-30-02.)



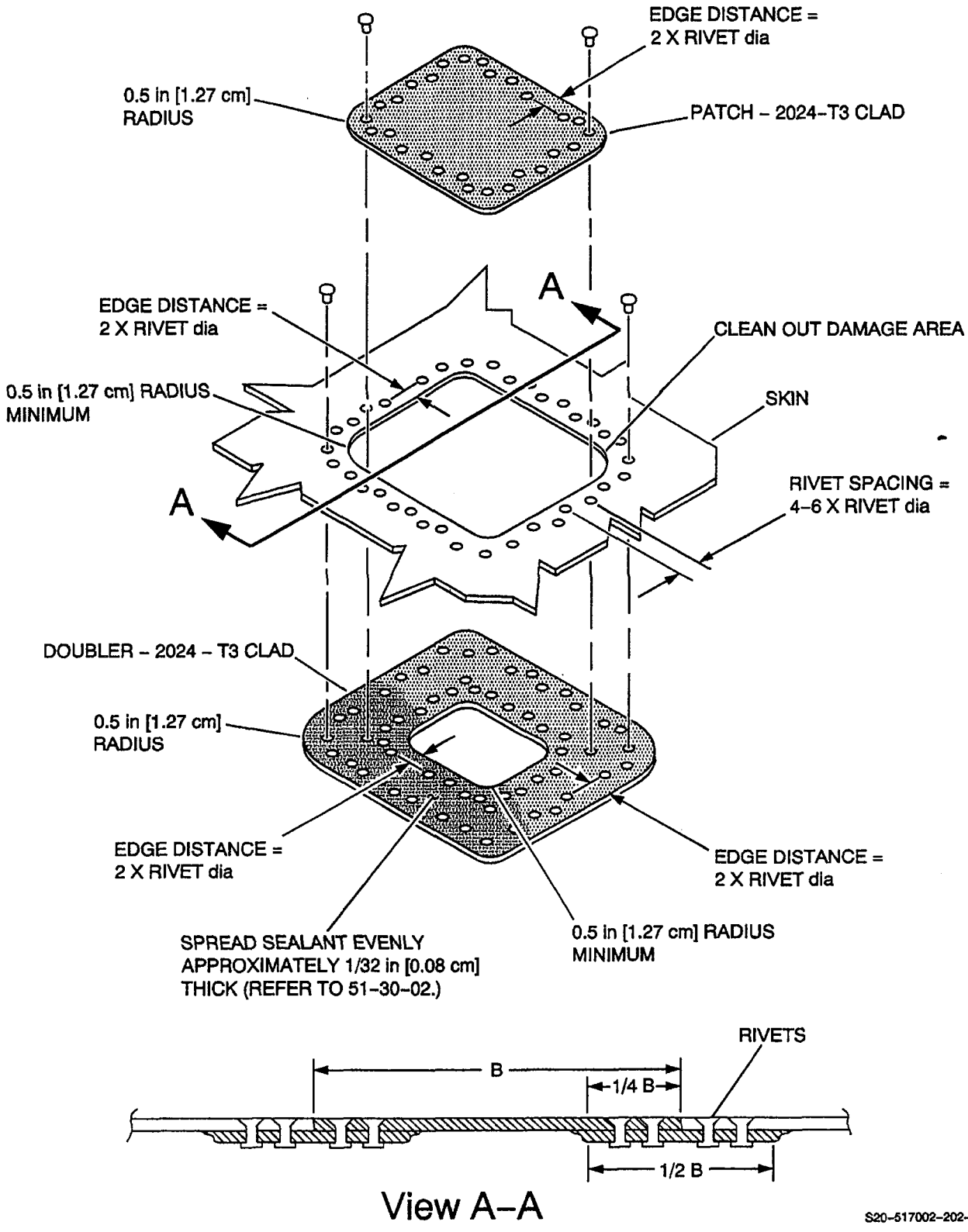
View A–A

S20-517002-201-01

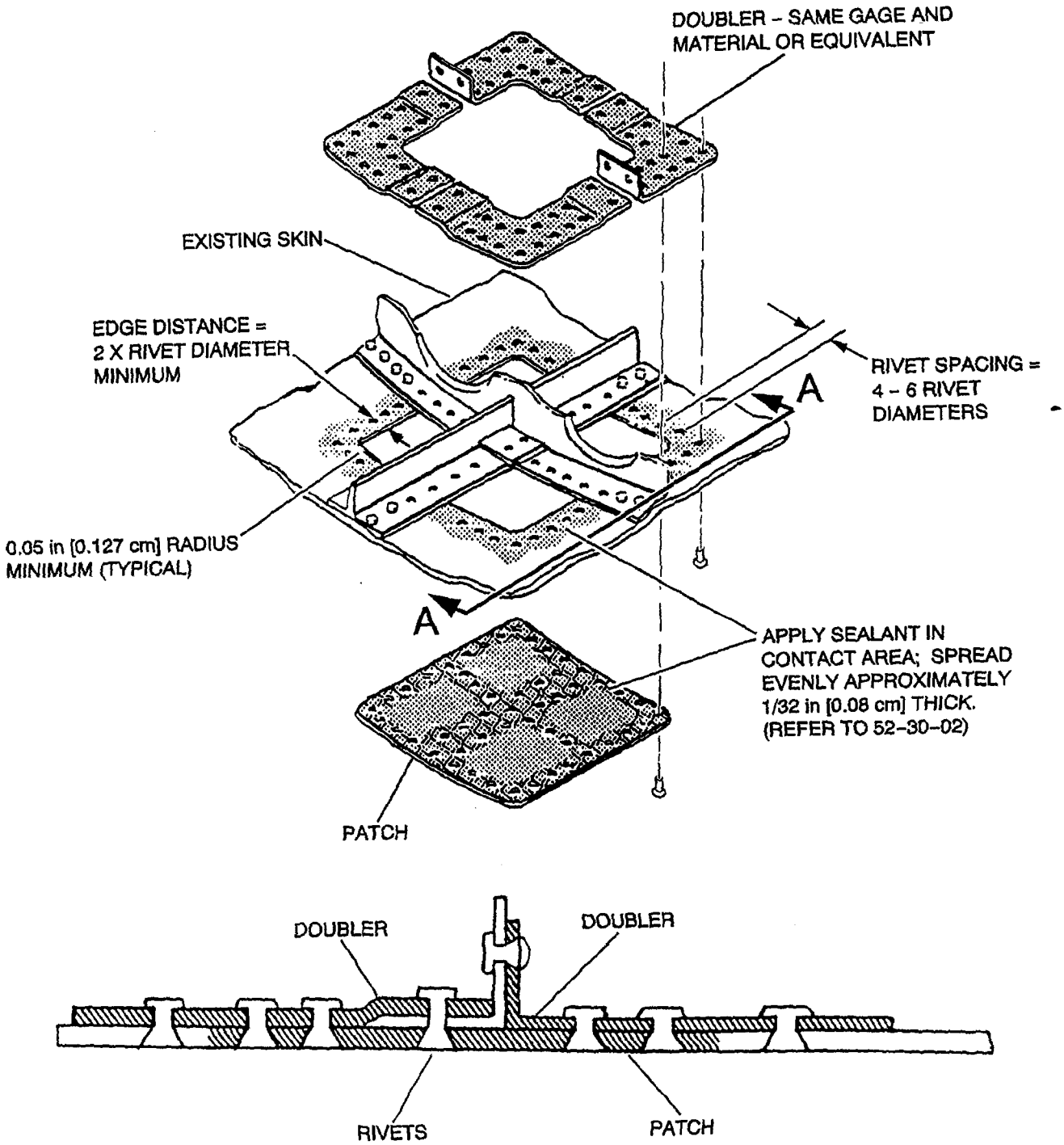
Typical Insert Patch (Non-Pressurized Area)
Figure 201 (Sheet 1 of 2)



Typical Insert Patch (Non-Pressurized Area)
Figure 201 (Sheet 2 of 2)



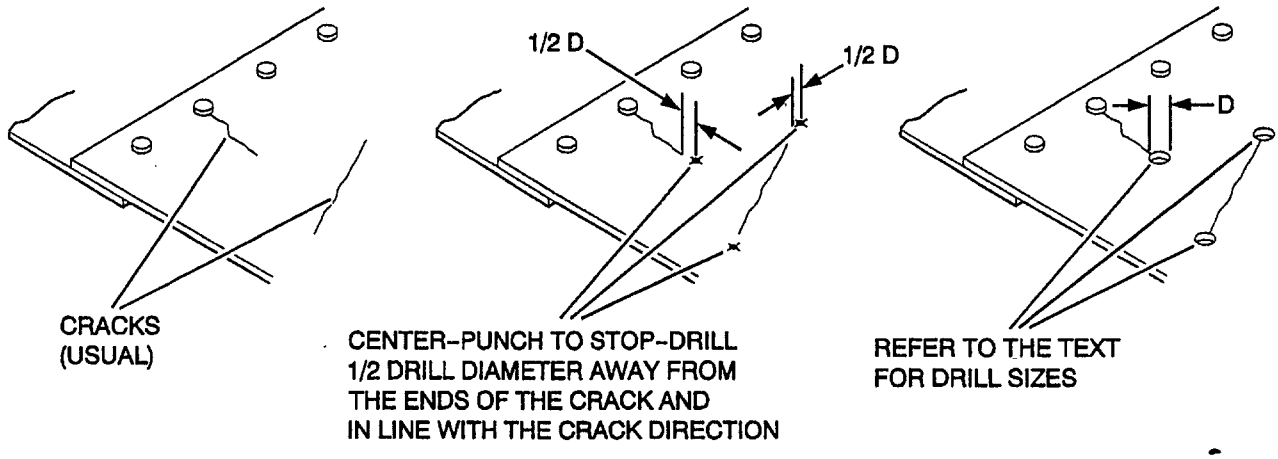
Typical Insert Patch (Pressurized Area)
Figure 202



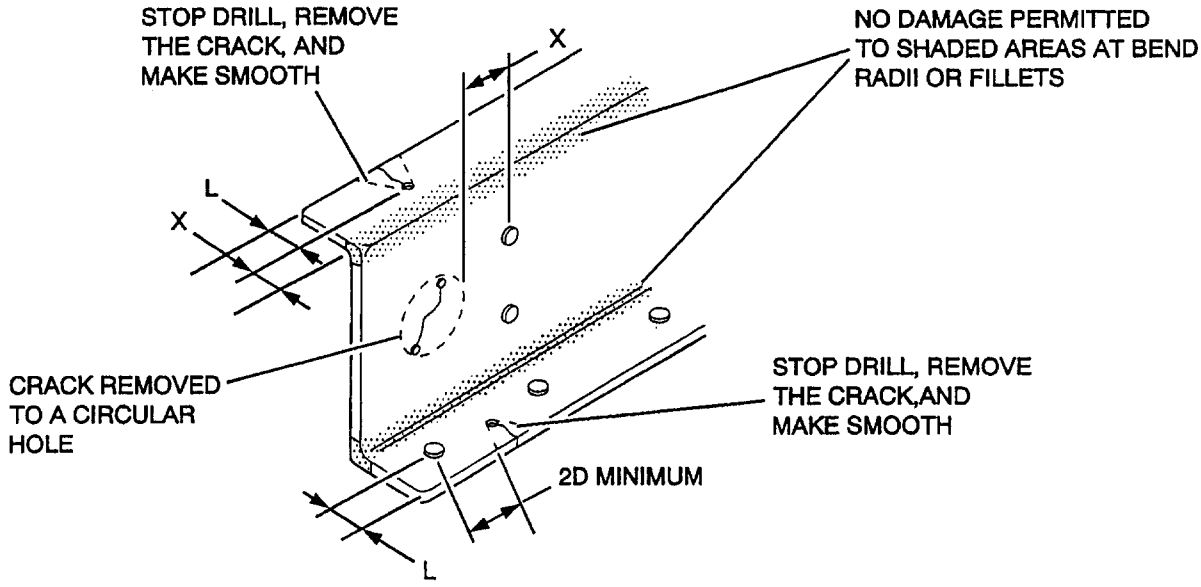
View A–A

S20-517002-203-01

Over Structure Repair (Pressurized and Non-Pressurized Area)
Figure 203



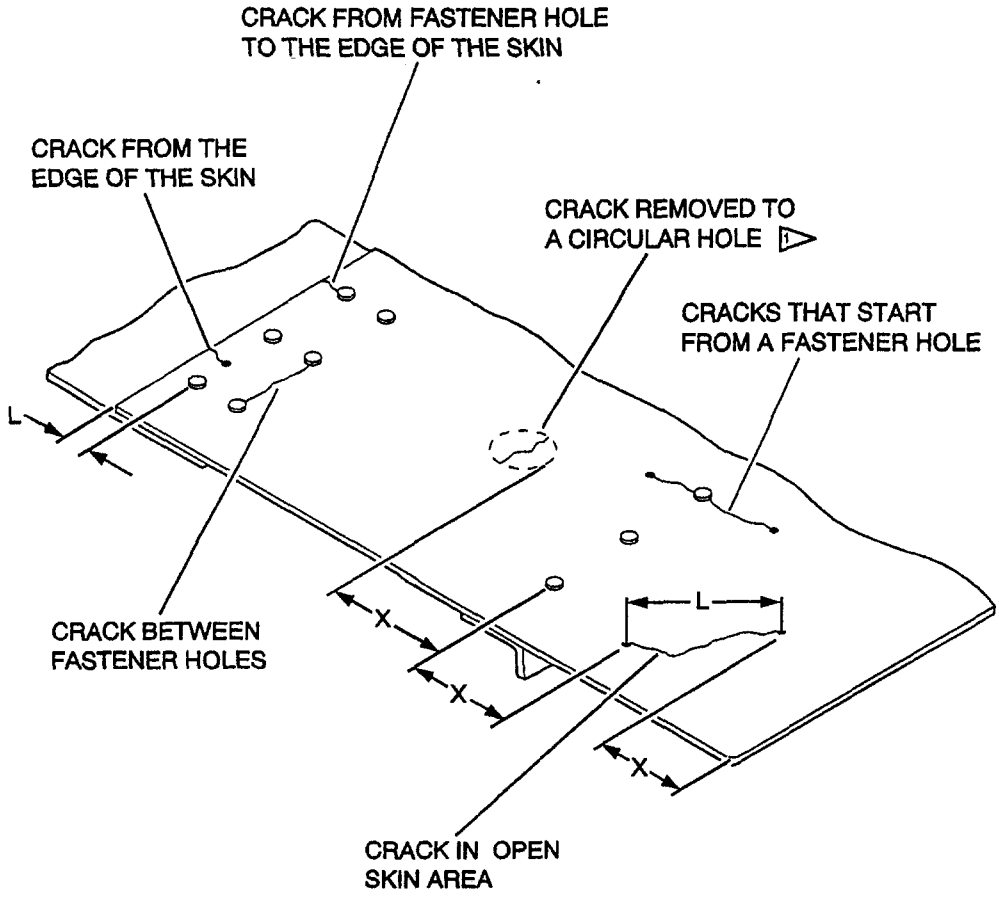
HOW TO STOP-DRILL CRACKS



TREATMENT FOR CRACKS IN EXTRUDED OR FORMED SECTIONS

S20-517002-204-01

Treatment of Permitted Cracks
Figure 204 (Sheet 1 of 2)



TREATMENT OF CRACKS IN SKIN

LEGEND

L = MAXIMUM LENGTH
X = MINIMUM DISTANCE
ED = EDGE DISTANCE
D = DRILL DIAMETER OR
RIVET HOLE DIAMETER

NOTE

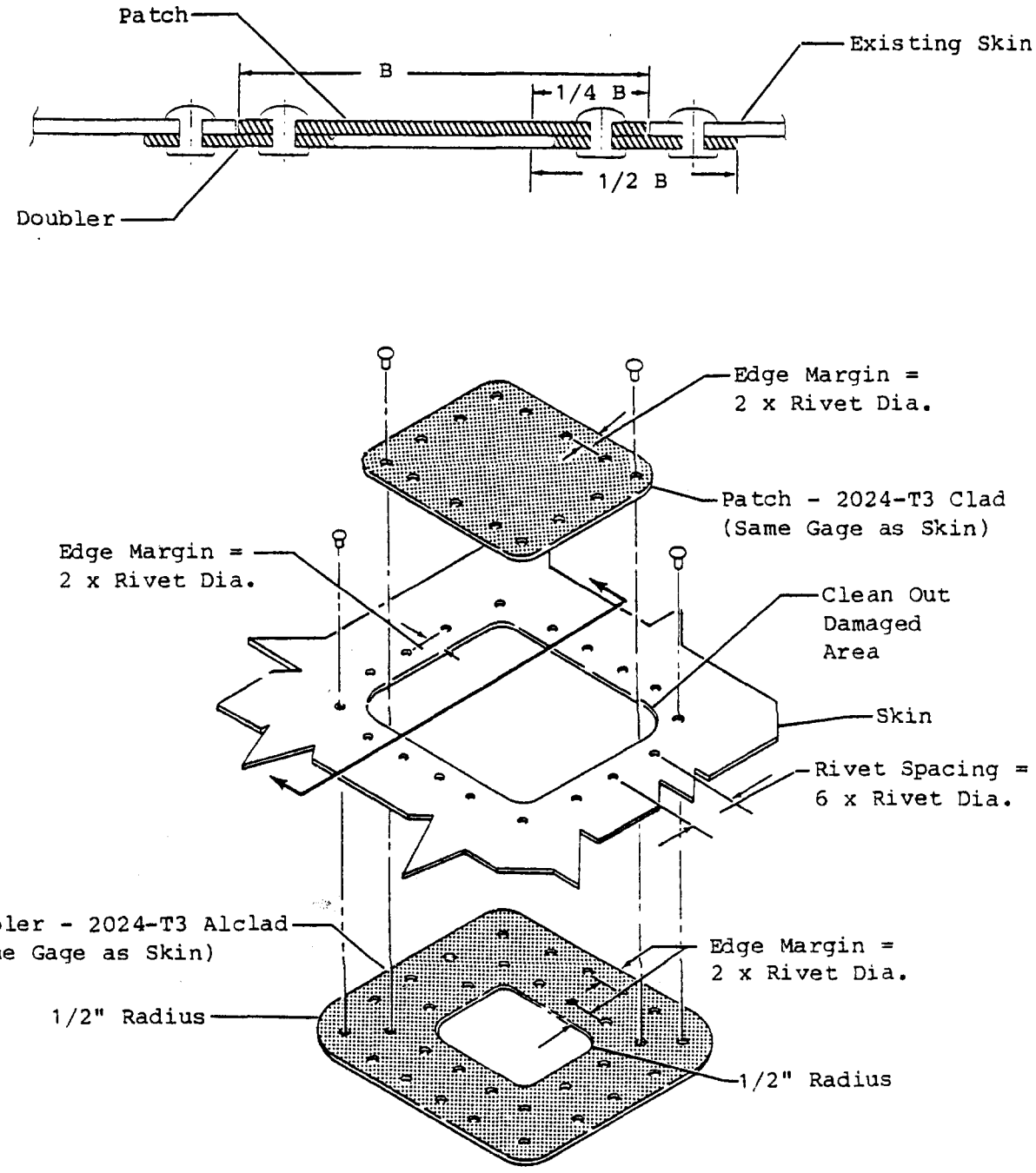
1 REFER TO THE APPLICABLE ALLOWABLE DAMAGE LIMITS FOR THE MAXIMUM DIAMETER.

S20-517002-204-02

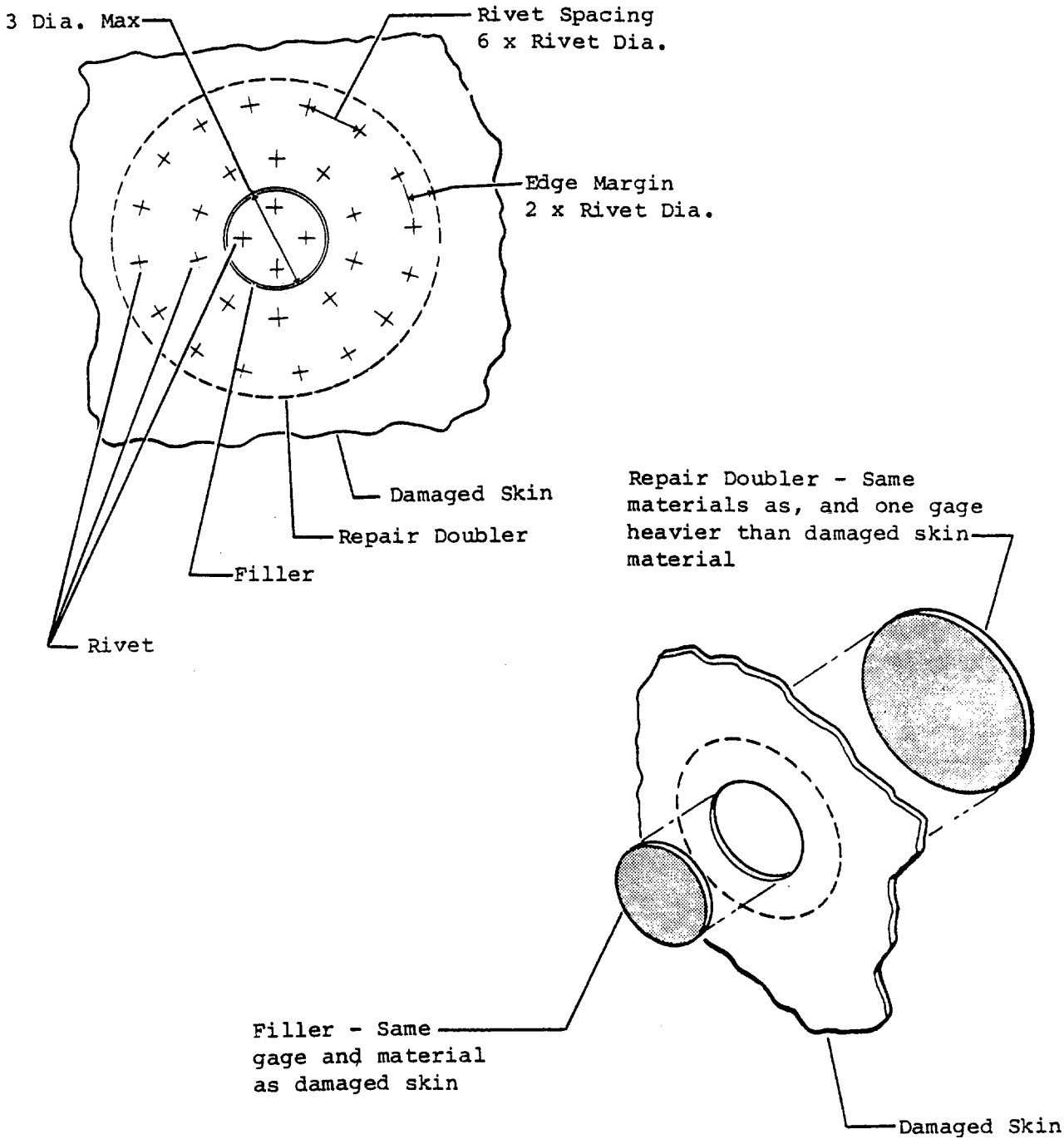
Treatment of Permitted Cracks
Figure 204 (Sheet 2 of 2)

AIRCRAFT SKIN - TYPICAL REPAIRS

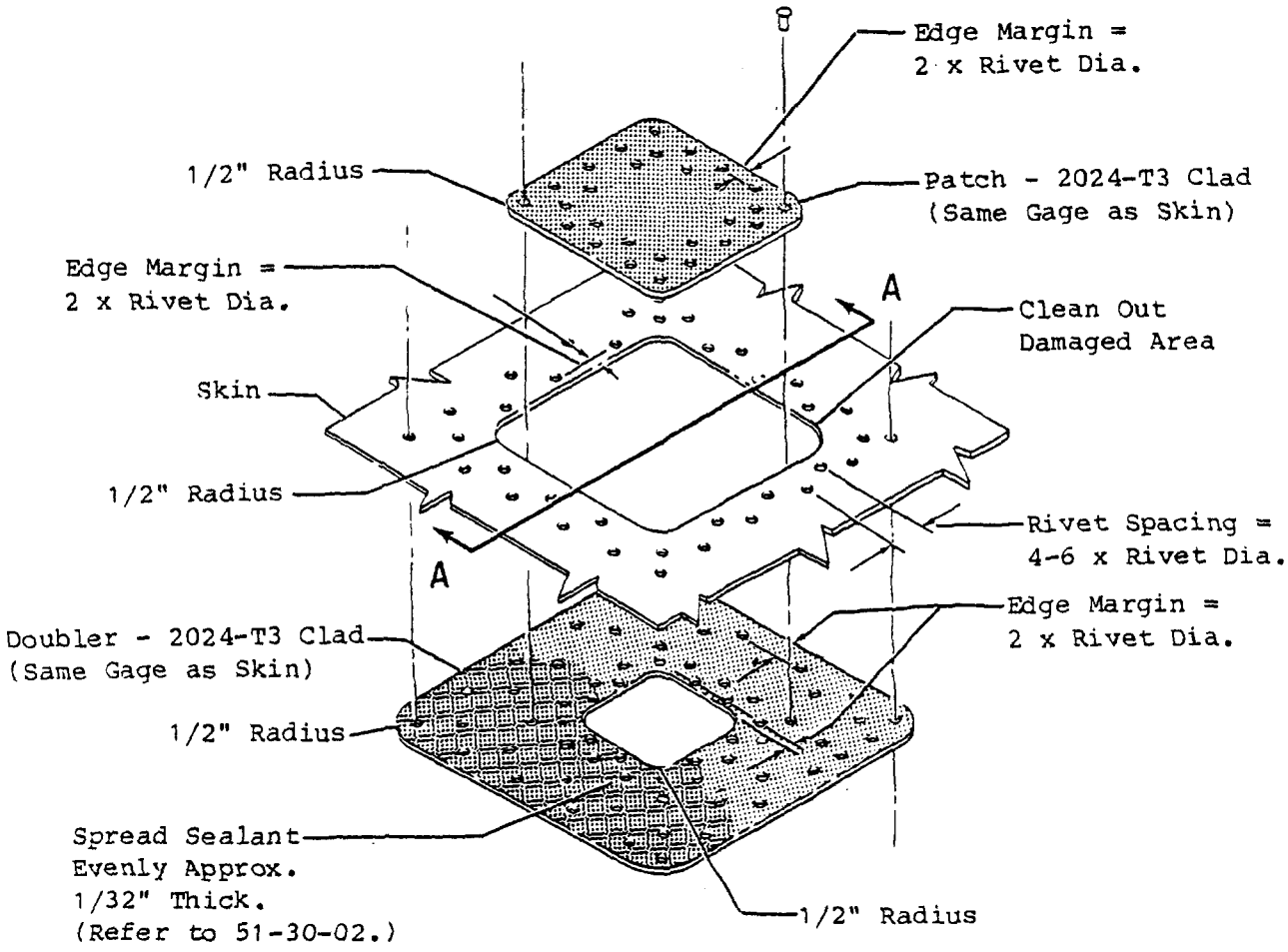
1. SKIN REPAIRS
   A. Repair Instruction (See Figures 201 thru 203.)
      (1) Repair procedures are given in this section for repair of skins of the pressure cabin, and skins outside of the pressure cabin. In the pressure cabin a staggered double row of rivets is required when the repair is not supported or made rigid by sub-structure.
      (2) Stop-drill cracks, or remove damaged area and smooth edges, before application of repair. Use #40 (0.098) stop-drill for metal thickness of 0.032 or less and #30 (0.128) stop-drill for metal thickness greater than 0.032.
      (3) Repair material and gage must be the same as original.
      (4) Rivet spacing shall be compatible with the original rivet pattern. As a general rule, rivet spacing shall be 6 times the diameter of the rivets.
      (5) Drill all parts in place, remove parts and remove burrs.
      (6) Refer to 51-30-04 for protective treatment of metal.
      (7) Apply sealant as required when the repair may affect the cabin pressure capabilities. Refer to 51-30-02 for sealing procedures.

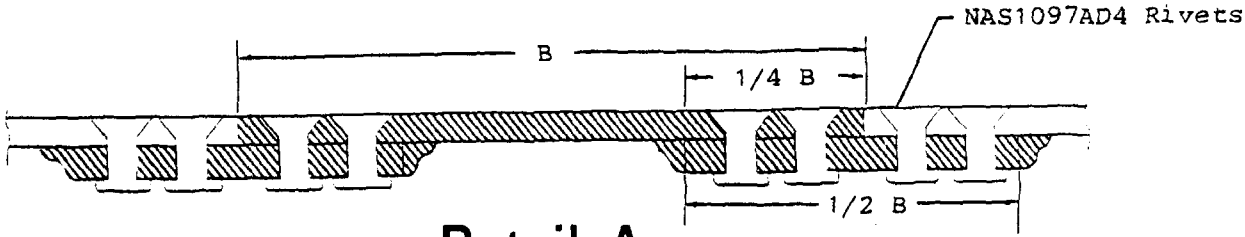


Typical Insert Patch (Non-Pressurized Area)
Figure 201 (Sheet 1 of 2)



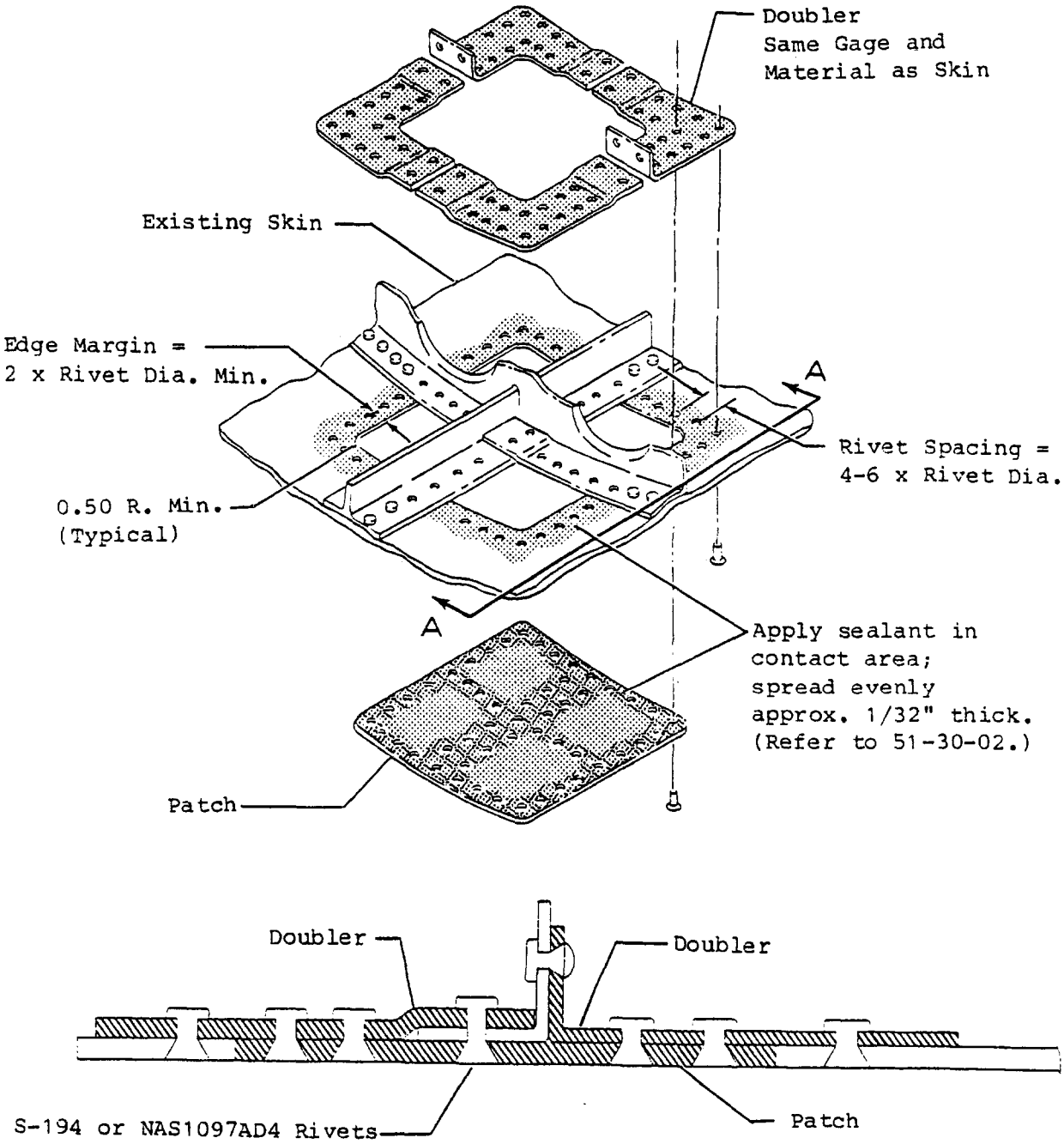
Typical Insert Patch (Non-Pressurized Area)
Figure 201 (Sheet 2 of 2)





Detail A

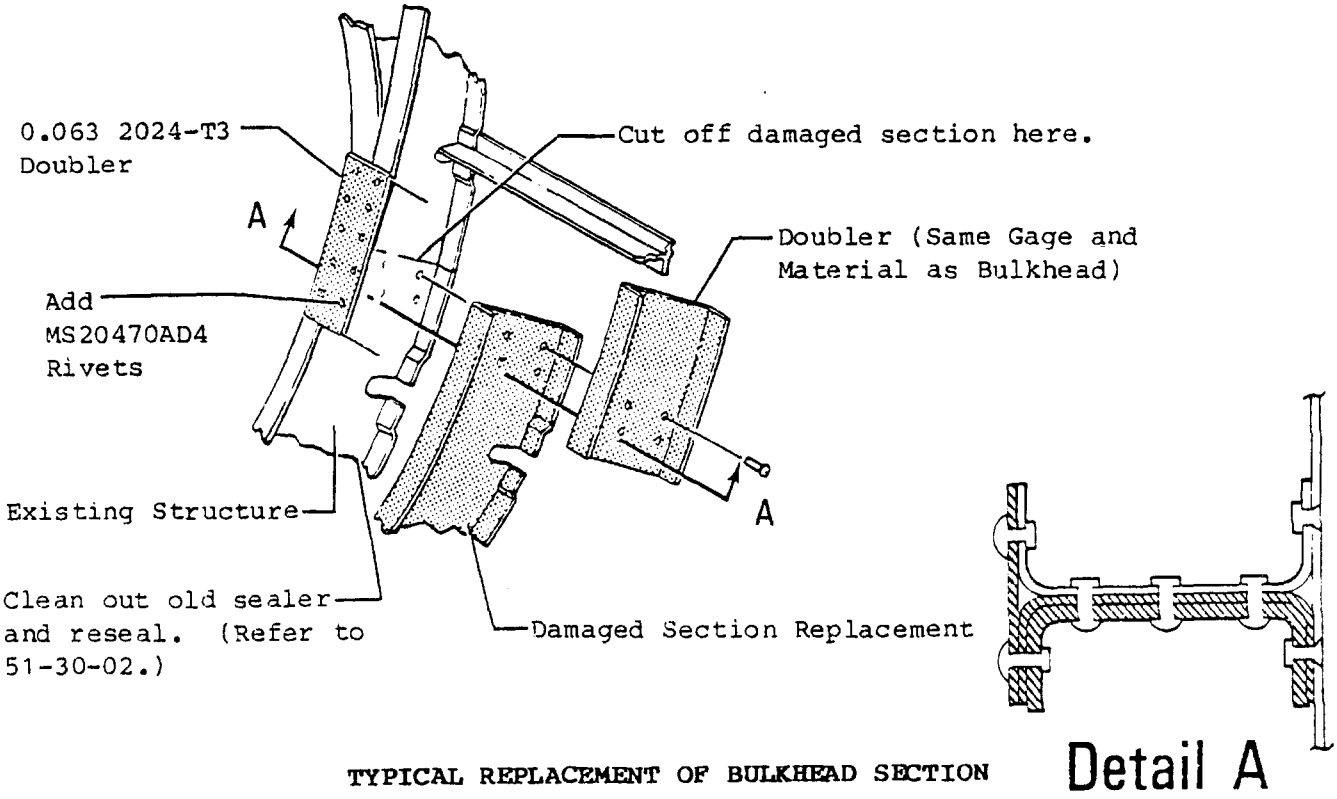
Typical Insert Patch (Pressurized Area)
Figure 202



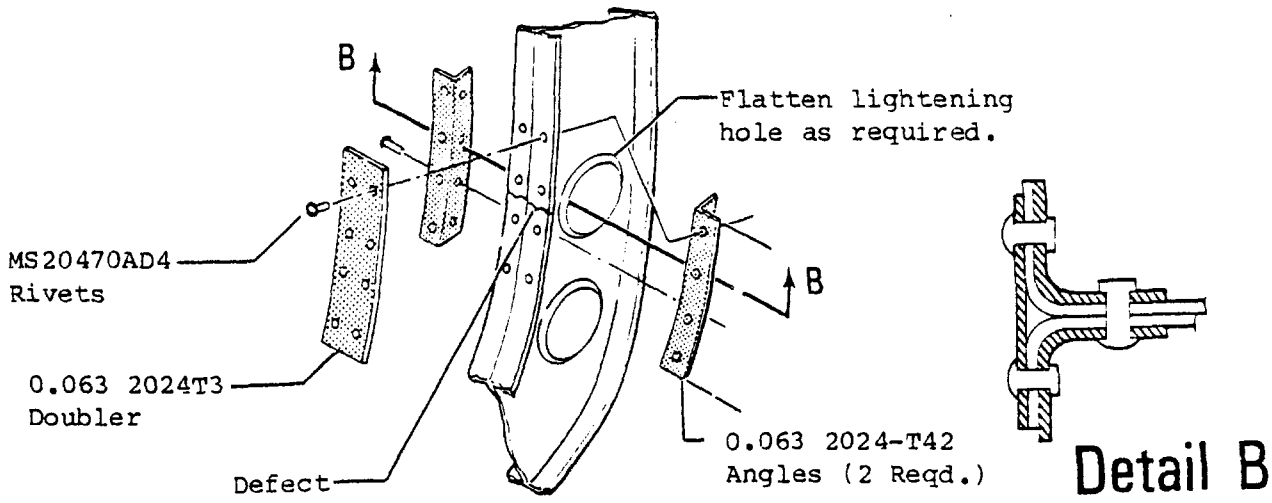
Over Structure Repair (Pressurized and Non-Pressurized Area)
Figure 203

FORMED SECTION - TYPICAL REPAIRS

1. SEVERED OR DAMAGED FORMED SECTION REPAIR
   A. Repair Instruction
      (1) Use same material and gage as original.
      (2) Refer to 51-40-02 for fastener removal and installation, hole sizes, and edge margins.
      (3) Refer to 51-30-04 for protective treatment of metal.
      (4) Restore required surface finish per Chapter 20 of the appropriate Learjet Maintenance Manual.
      (5) Seal the repair as required. (Refer to 51-30-02.)

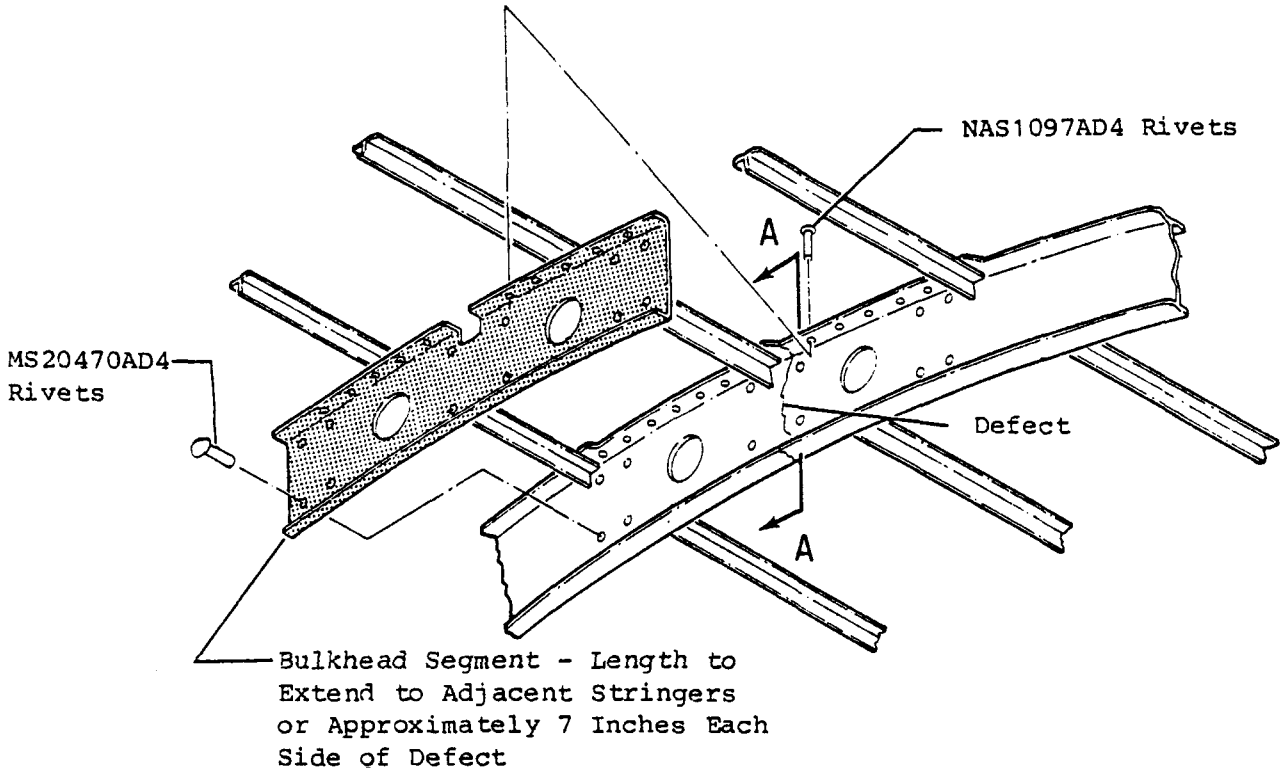


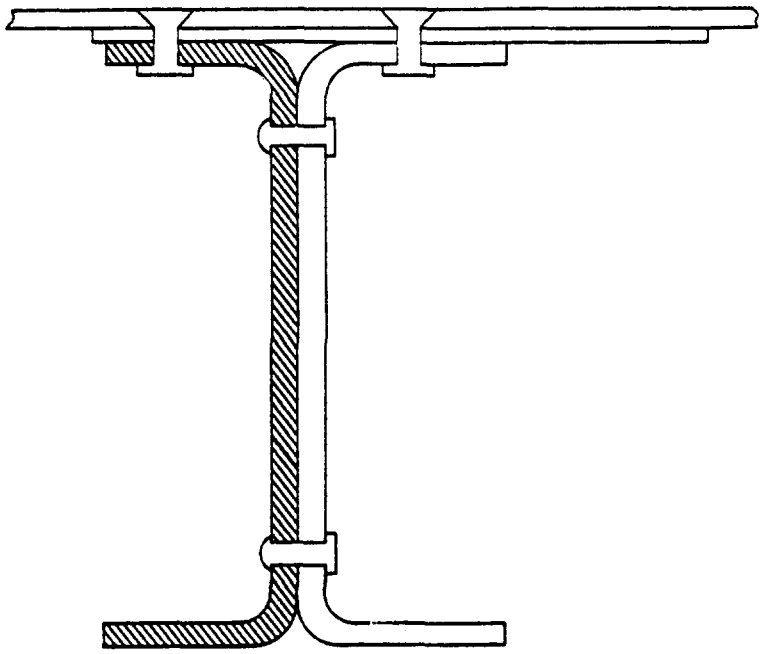
TYPICAL REPLACEMENT OF BULKHEAD SECTION



TYPICAL REPAIR OF CRACKED BULKHEAD

Typical Bulkhead Repair
Figure 201 (Sheet 1 of 2)



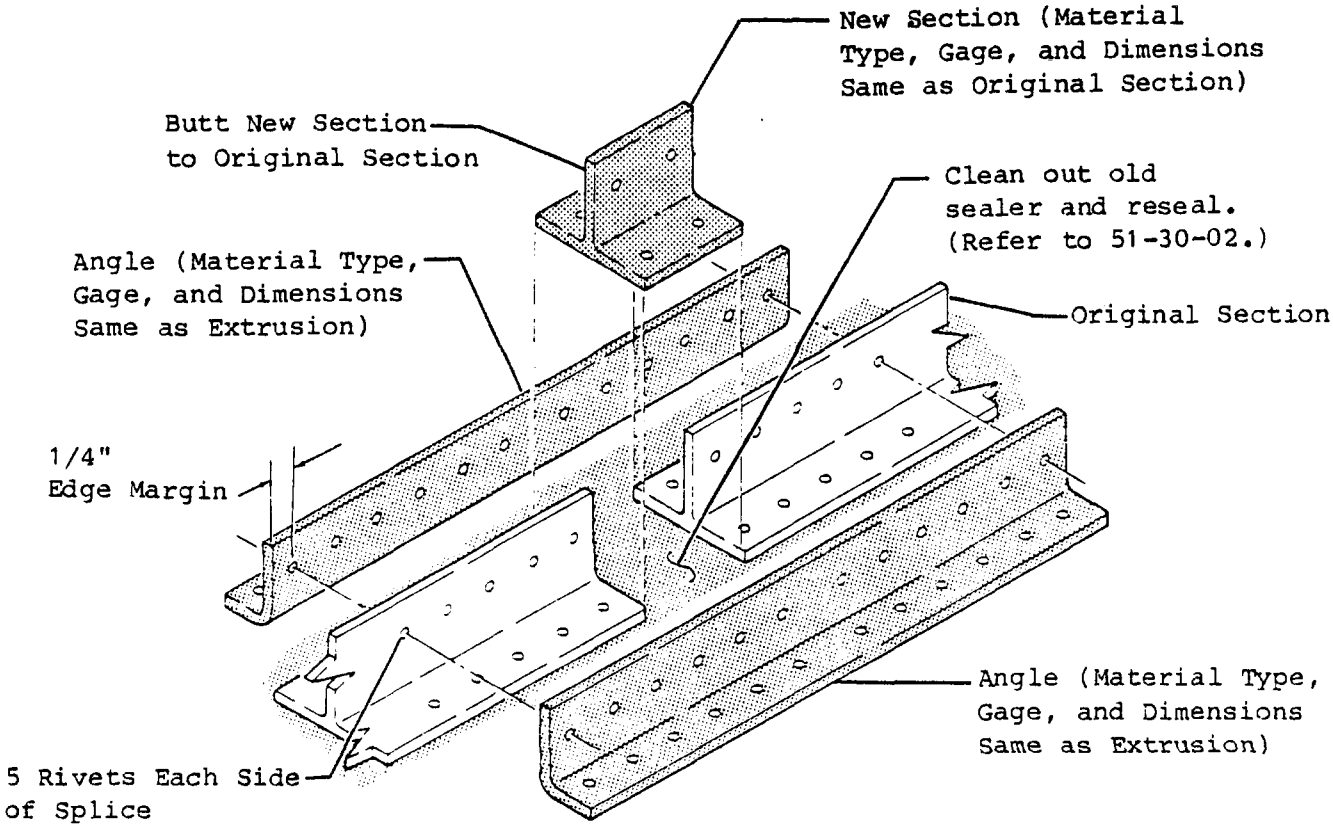


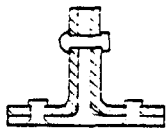
Detail A

Typical Bulkhead Repair
Figure 201 (Sheet 2 of 2)

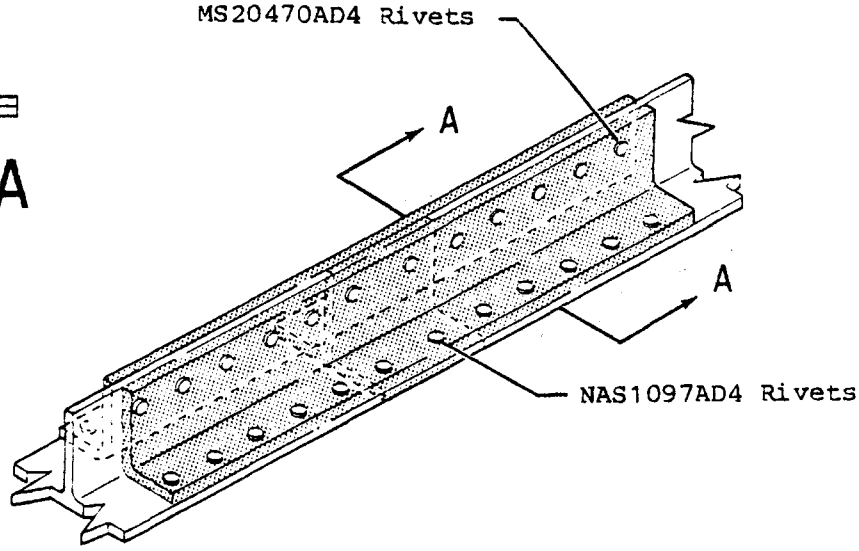
EXTRUDED SECTION - TYPICAL REPAIRS

1. EXTRUDED SECTION REPAIR
   A. Repair Instruction
      (1) Cut and remove damaged portion of extrusion.
      (2) Fabricate repair parts of same gage and dimensions of original extrusion.
      (3) Assemble repair parts and drill and ream fastener holes.
      (4) Prepare repair parts for sealing, if required, in accordance with 51-30-02.
      (5) Refer to 51-40-02 for fastener removal, installation, hole sizes and edge margins.
      (6) Refer to 51-30-04 for protective treatment of metals.
      (7) Restore finish in accordance with Chapter 20 of the appropriate basic Learjet Maintenance Manual.

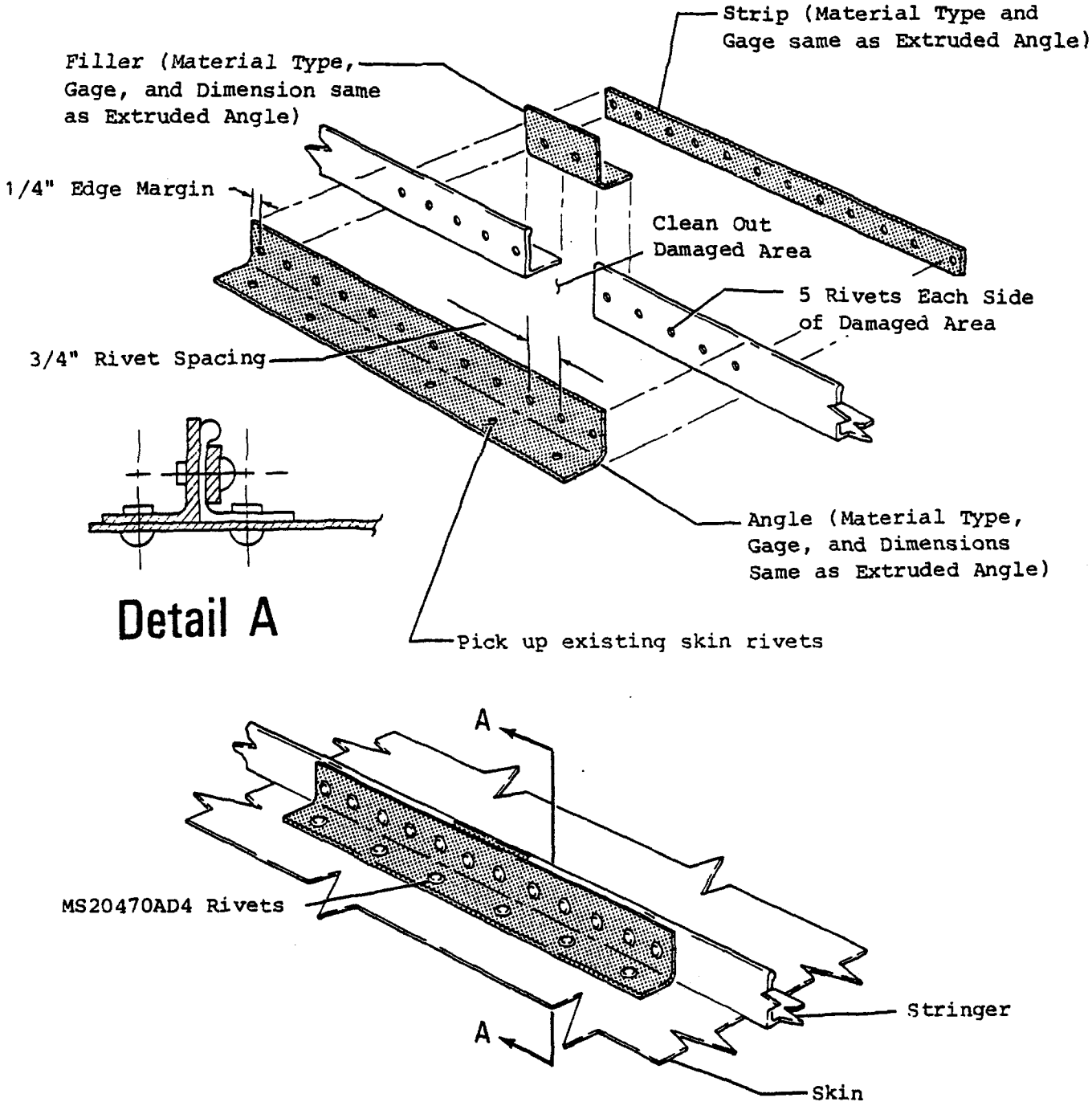




Detail A



Typical Extruded Section Repair (Pressurized and Non-Pressurized Area)
Figure 201



Typical Stringer Repair (Pressurized and Non-Pressurized Area)
Figure 202

FIBERGLASS STRUCTURES - REPAIR

1. DESCRIPTION

A. Fiberglass structures used on the Learjet include the radome and dorsal inlet fairing.

(1) On *early Model 20/30 Series Aircraft* the radomes are constructed of 2-inch wide strips of fiberglass cloth, bonded together with a polyester-based resin. On *later Model 30 Series Aircraft*, and as replacement spares for the earlier model polyester-type radomes (*per SSK 911*), an epoxy-based resin, single-sandwich honeycomb-core radome is used. The radome is attached to the nose by screws. An erosion boot is bonded to the nose of the radome to prevent environmental erosion. For additional information pertaining to the radome erosion boot refer to the basic Learjet Maintenance Manual.

(2) The dorsal inlet fairs the vertical stabilizer to the fuselage and permits entry of ram air for the heat exchanger. The dorsal inlet is constructed of 5-ply laminated fiberglass and is attached permanently to the fuselage and vertical stabilizer. Two bulkheads are riveted into the dorsal inlet and are secured to the fuselage with screws.

2. RADOME - APPROVED REPAIRS

NOTE: These repairs apply only to the nose radome.

A. Approved repairs for the radome include the repair of minor damage to the radome skin and replacement of radome erosion boot. For radome erosion boot removal and/or replacement refer to the basic Learjet Maintenance Manual.

B. Prior to beginning radome repair, determine which type of resin was used in radome fabrication by looking inside radome with a strong light shinning thru from the outside. Radomes fabricated with polyester resin are translucent and their cores are constructed of 2-inch wide strips of fiberglass cloth, which will be visible. Radomes fabricated with epoxy resin are opaque and have one-piece cores.

C. As a general rule, minor damage is defined as damage to the radome skin only. This excludes any damage which goes into or beyond the core.

D. Radomes which cannot be repaired per the following instructions must be replaced with a new radome per Special Spares Kit (SSK) 911. This includes any radome damaged beyond the limits set in the following instructions.

E. Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

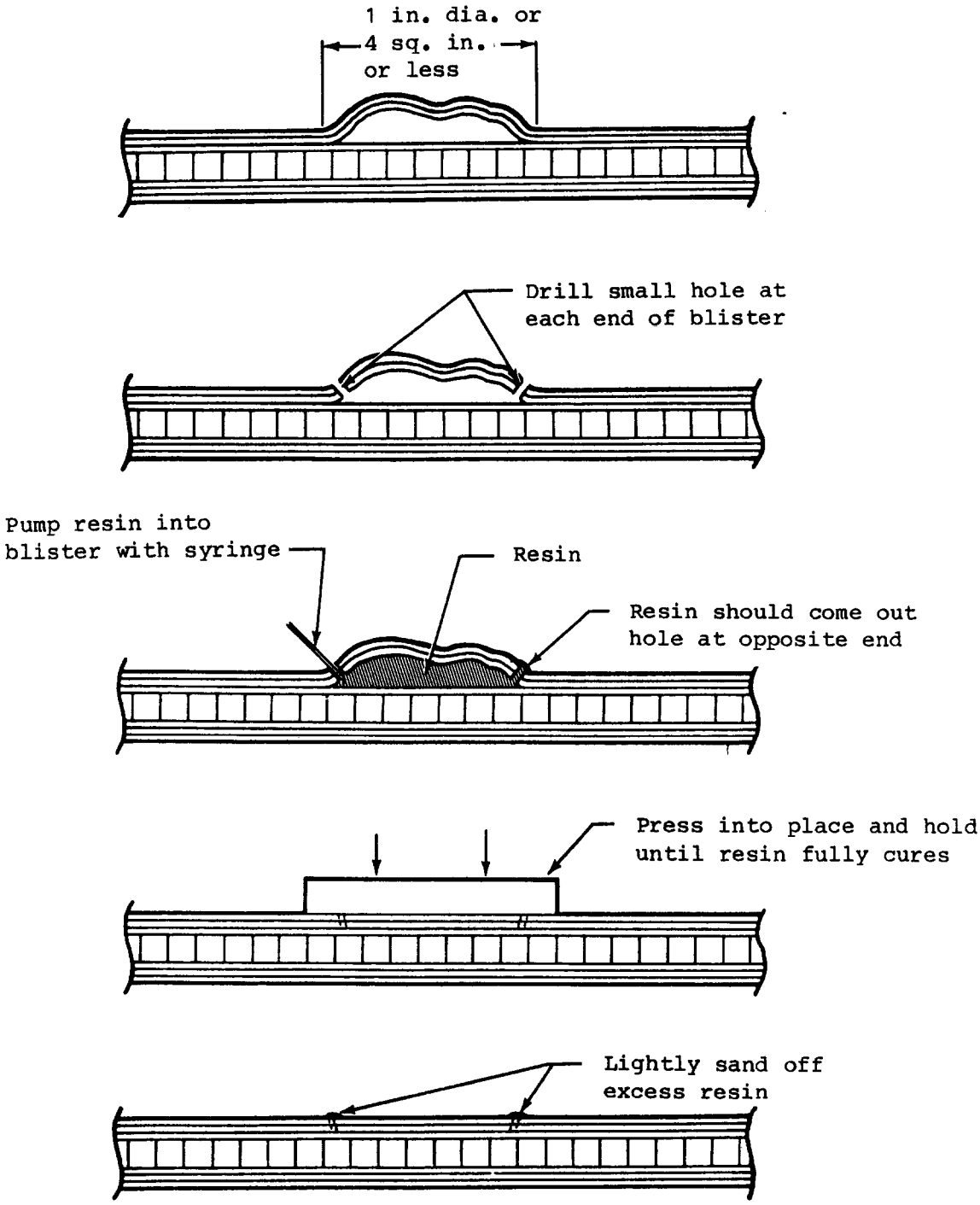
NAME	PART NUMBER	MANUFACTURER	USE
Epoxy Resin	Epon 828 or Epon 815	Shell Chemical Company	Bond radome skin
Epoxy Hardener	916 Epon 815	Shell Chemical Company	Hardener for epoxy resin
Polyester Resin	Hetron 92	Pittsburg Plate Glass Co.	Bond radome skin

NAME	PART NUMBER	MANUFACTURER	USE
6% Cobalt Napthenate	Fed. Spec. TT-D-643	Commercially available	Used with polyester resin
MEK Peroxide		Lucidol Div., Novadel Agene Co.	Used with polyester resin
Hypodermic Syringes and Needles		Commercially available	Inject adhesive

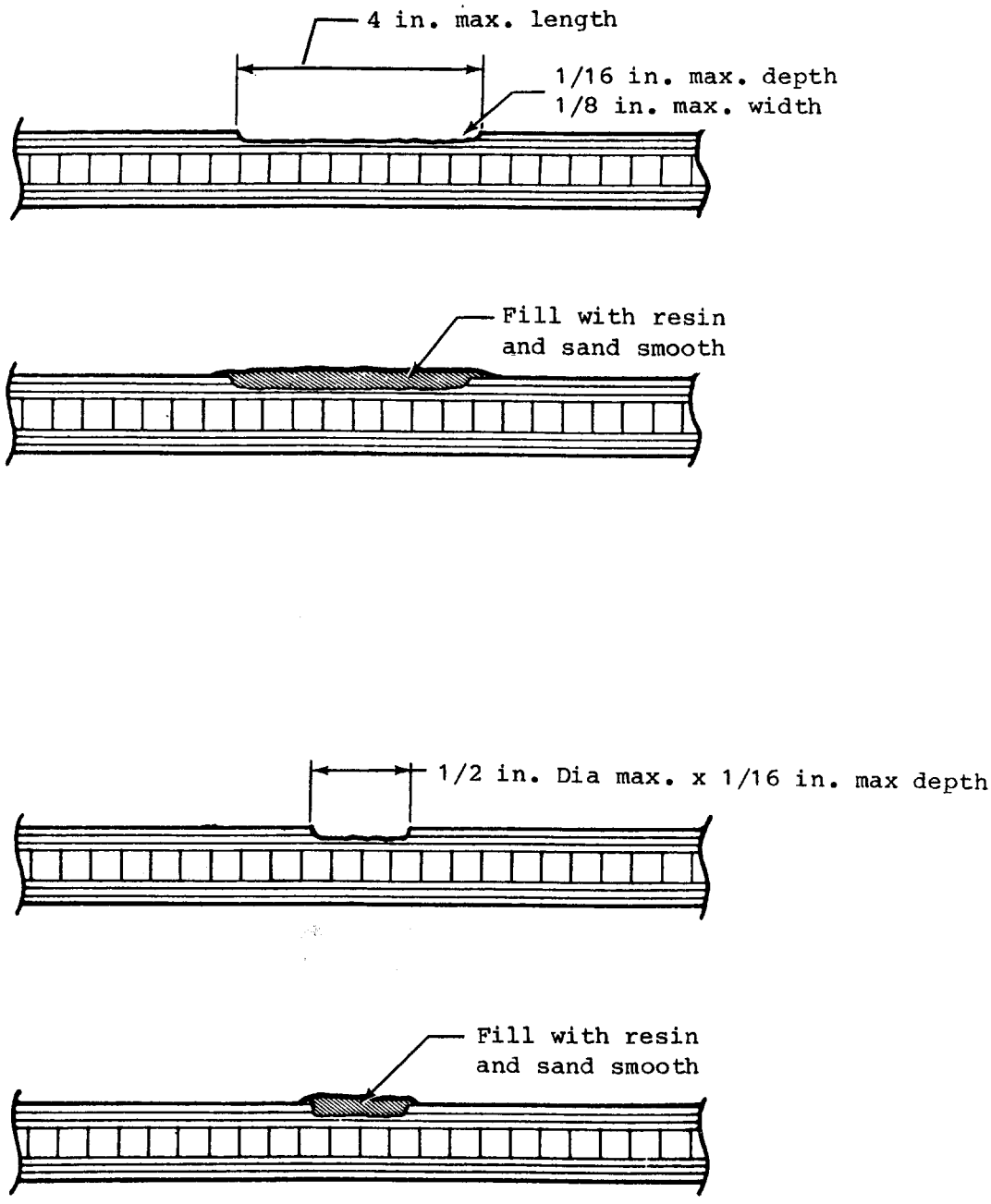
F. Mixing Instructions
   (1) Mix epoxy resin as follows:
      (a) Mix by weight 100 parts of Epon 828 or Epon 815 epoxy resin and 20 to 25 parts of 916 hardener just before using. After mixing, pot life is approximately 23 minutes at room temperature.
   (2) Mix polyester resin as follows:
      (a) Mix by weight 100 parts of Hetron 92 and 0.50 part of 6% cobalt napthenate. After thoroughly mixing, add by weight 1.0 part of MEK peroxide.

G. Blisters and delaminations not greater than one (1) inch in diameter, not closer than four (4) inches, or greater in number than four (4) in four (4) square feet of surface (see Figure 201) are to be repaired as follows:
   (1) Drill a small hole into, but not through the skin at each end of the blister or delamination.
   (2) Fill syringe with resin and inject the blister or delamination full of resin.
   (3) Press the blister or delamination firmly into place and hold until resin has cured.
   (4) Remove any excess resin from the surface with light sanding.
   (5) Check repair for a sound bond by tapping repaired area with a coin. Any area which is not properly bonded will make a different (hollow) sound when tapped.
   (6) Repaint affected area of radome in accordance with Chapter 20 of the appropriate basic Learjet Maintenance Manual.

H. Scratches are limited to those not more than 1/8-inch wide, 1/16-inch deep and 4-inches long. (See Figure 202.) Pits and depressions are limited to those not more than 1/2-inch in diameter and not more than 1/16-inch deep. These defects must not be any closer than one (1) inch and there shall be no more than three defects per one (1) square foot of surface area. Repair the defects as follows:
   (1) Fill defect with resin and allow to fully cure.
   (2) Carefully sand the resin to a uniform smoothness, blending with the contour of the radome.
   (3) Repaint affected area of radome in accordance with Chapter 20 of the appropriate basic Learjet Maintenance Manual.



Blister and Delamination Repair
Figure 201



Scratch, Pit, and Depression Repair
Figure 202

3. DORSAL INLET - APPROVED REPAIRS
   A. Approved repairs for the dorsal inlet include minor and major damage to the dorsal inlet fairing.
   B. Damage to the dorsal inlet forward structure shall require replacement of the dorsal inlet fairing.
   C. Tools and Equipment

      NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Glass Fabric	181 weight and 120 weight	J.P. Stevens & Co., Inc. New York, NY	Replace damaged skin
Epoxy Resin	Epon 828 or Epon 815	Shell Chemical Company	Bond skin
Epoxy Hardener	916	Shell Chemical Company	Bond skin
Clean Cloth or or Cheesecloth		Commercially available	Remove residue
Acetone or Ketone		Commercially available	Remove residue

   D. Repair blisters and delaminations, scratches, pits and depressions per instructions in step 2, except that damaged area in excess of size and depth limits given in step 2 shall be repaired as follows:

      NOTE: Damage in excess of limits in step 2 shall be combined as one repair area.

      (1) Mark off an area larger on all sides than the area to be repaired by an amount in inches equal to the number of plies affected minus 1.
      (2) Cut an X in the center and remove the first ply, being careful not to cut into the remaining plies.

         NOTE: Rectangular cut-out area or other cut-out area having sharp corners shall be avoided whenever possible and the outside ply shall be avoided whenever possible.

      (3) Move in one (1) inch on all sides and remove second ply (if affected).
      (4) Proceed in this fashion until all damaged plies have been removed.
      (5) Sand exposed plies and wipe with a clean, lint-free cloth or cheesecloth moistened with acetone or ketone.
      (6) Cut 181-weight glass fabric for inner plies and 120-weight glass fabric for outer ply to lap each new ply of skin 0.5 to 0.75 inch (12.7 to 19.5 mm) over corresponding ply of original skin.
      (7) Mix resin per step 2. F.
      (8) Impregnate new plies with mixed resin.
      (9) Place impregnated plies in damaged area, working each ply to make it as wrinkle-free and tight to the preceding ply as possible, and to remove excess resin and air from the laminate.

NOTE: The outermost ply of the original outer skin must be faired to a fine edge to prevent bridging or gaps at the repair line.

(10) Laminate will cure in approximately two (2) hours at room temperature. Cure time can be shortened by heating to 140° to 160°F (60°C to 71°C) using a heat gun or infrared lamps.
(11) Sand to contour with 150 grit or finer abrasive paper, being careful not to sand into the glass fabric.
(12) Check repair for a sound bond by tapping repaired area with a coin. Any area which is not properly bonded will make a different (hollow) sound when tapped.
(13) Repaint affected area of dorsal inlet in accordance with Chapter 20 of the appropriate basic Learjet Maintenance Manual.

CORROSION - REPAIR

1. APPROVED REPAIRS

A. Using a dial indicator depth gauge (or equivalent), determine the extent of corrosion (material damage). If material damage exceeds the allowable material thickness, as specified in the allowable damage limits section of each chapter, the structural component must be replaced. (See Figure 201.)

NOTE:
- **Light Corrosion** - Structure is discolored or pitted to a depth of approximately 0.001 inch (.0254 mm) maximum.
- **Moderate Corrosion** - Structure has blisters, scaling, flaking, and pitting to a depth of 0.010 inch (.254 mm). Requires structural repairs after rework of corroded areas.
- **Severe Corrosion** - Structure has severe blisters, exfoliation, scaling, and pitting to a depth greater than 0.010 inch (.254 mm). Requires structural repairs or replaced.

B. If light or moderate corrosion is found, rework area per paragraph D.

C. If severe corrosion is found, the structural component must be repaired or replaced.

D. Rework lightly or moderately corroded areas on structure as follows: (See Figures 202 and 203.)

CAUTION: **DO NOT USE STEEL WOOL OR STEEL WIRE BRUSHES OR SEVERE ABRASIVES WHEN REWORKING STRUCTURE FOR CORROSION. USE 240 GRIT OR FINER ALUMINUM OXIDE ABRASIVE PAPER. FINISH WITH 400 GRIT PAPER.**

(1) Sand corroded areas using 240 grit or finer aluminum oxide abrasive paper.

(2) Blend out pits in structure as shown.

WARNING:
- **WEAR PROTECTIVE MASK AND ENSURE THAT WORK AREA IS WELL VENTILATED WHILE CLEANING STRUCTURE WITH METHYL ETHYL KETONE (MEK).**
- **ENSURE THAT MANUFACTURER'S PUBLISHED INSTRUCTIONS ARE FOLLOWED WHEN USING CLEANING AGENTS AND METAL FINISH.**

(3) Clean sanded surfaces with a clean cloth soaked with methyl ethyl ketone (MEK). Immediately wipe surfaces dry using a clean, dry cloth. Do not allow solvents to be "wicked" under adjacent structure.

(4) Apply chemical film treatment on reworked surfaces as follows:

(a) Obtain Turcoat Accelagold chemical film treatment, manufactured by Turco Products Company, Wilmington, CA.

NOTE: Any equivalent chemical film treatment for aluminum alloy may be used providing it complies with MIL-C-5541 Class 1 metal finish.

(b) Brush chemical film over sanded surfaces until a satisfactory chemical film is obtained.

(c) Gently sponge over chemically treated surfaces using warm water. Do not rub surfaces. Allow surfaces to air dry.

(5) Apply a brush coat of epoxy primer on chemically treated surfaces as follows:

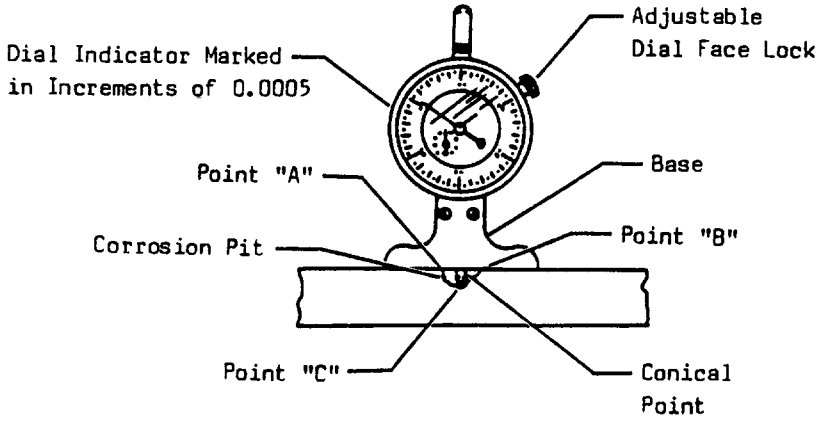
NOTE: Use either of the primer systems described below:

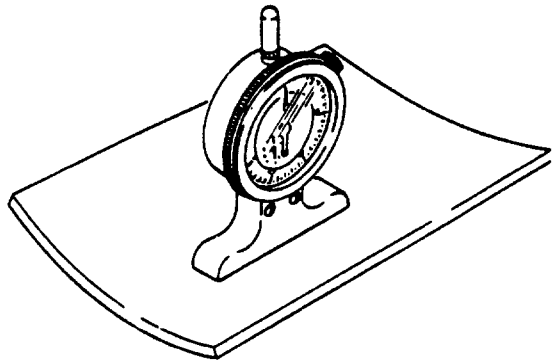
- Thoroughly mix one volume of base primer #515-344 and one volume of curing solution #910-350, Super Koropon Fluid Resistant Primer available from: Desoto, Inc., P.O. Box 401268, Garland, TX 75040. Telephone (214) 276-5181.

- Thoroughly mix one volume of primer base #463-12-8 and one volume of Catalyst CA-116 Cat-A-Lac corrosion resistant primer available from: Bostik Div. Emhart Corp., 20846 S. Normandie Ave., Torrance, CA 90502. Telephone (213)320-6800.

- Thoroughly mix one volume of primer base #438-660 and one volume of curing agent #120-650 available from: Wichita Division, Pratt & Lambert, P.O. Box 2153, Wichita, KS 67201. Telephone (316) 733-1361.

(a) After one of the primer systems described above has been thoroughly mixed, apply a brush coat over the prepared surfaces.
(b) Allow primer to dry at room temperature for a minimum of two hours.
(6) Install all previously removed equipment.
(7) Return aircraft to service.



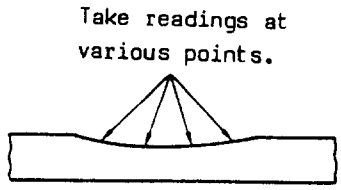


DETAIL I

NOTE:

- Depth dial gage 0 to 0.500 inch range.
- Take measurement readings on edges adjacent to corrosion damage or blended depression (Points "A" and "B"). Take several readings around center of corrosion damage or blended depression (See Detail II) and consider the deepest reading to be Point "C". Determine depth as follows:

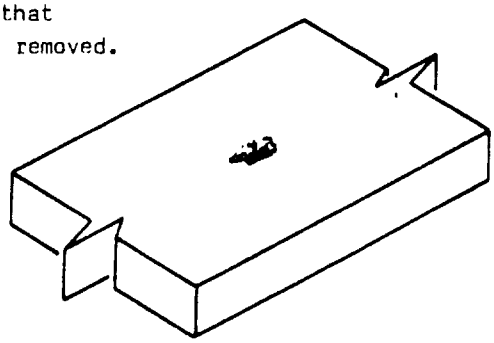
$$\text{Depth} = C - \frac{(A + B)}{2}$$



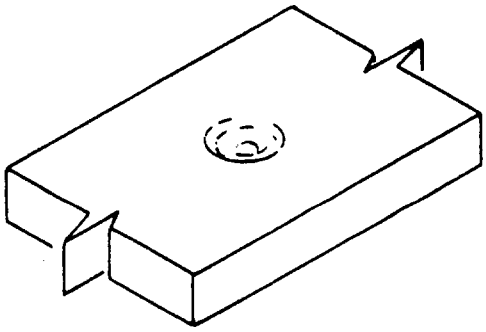
DETAIL II

Corrosion Damage and Rework Measurement
Figure 201

Pit has been cleaned up to the extent that all loose corrosion products have been removed.



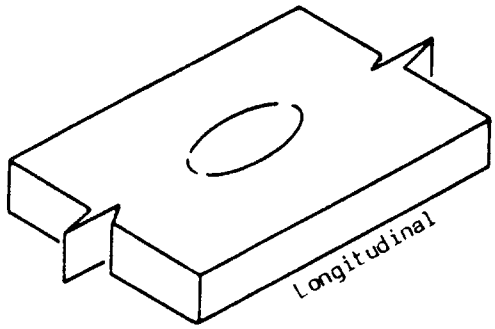
CORROSION DAMAGE BEFORE REWORK



Rough edges have been smoothed and all corrosion has been removed. However, depression has not been shaped.

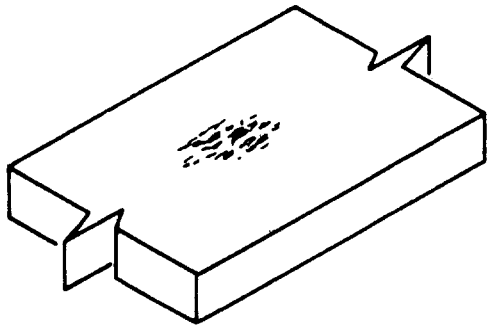
DEPRESSION AFTER CORROSION REMOVAL

Blending has been accomplished in the ratio and direction shown in figure 203.

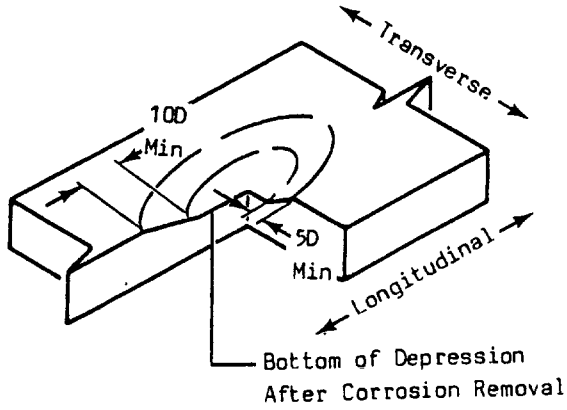


DISH-OUT AFTER BLENDING

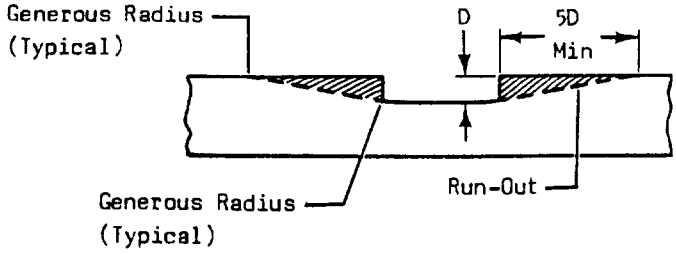
Blendout of Corrosion of Single Depression
Figure 202



CORROSION DAMAGE BEFORE REMOVAL



DAMAGE REMOVED AND SURFACE SMOOTHED
WITH SHALLOW ELLIPTICAL DISH-OUT



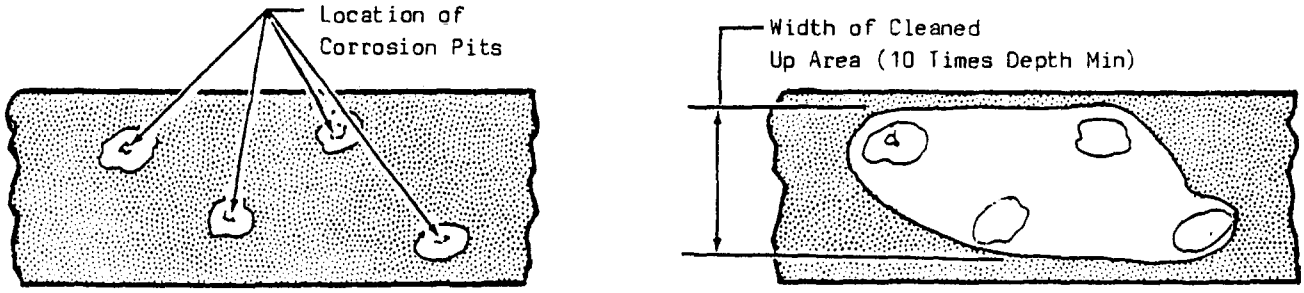
EXAMPLE OF 1:5 BLENDING RATIO
DETAIL I

NOTE:

- D = Depth of Depression
- Refer to specific allowable damage limits for maximum allowable depth.
- Since maximum depth varies at different locations, maximum size of dish-out will also vary.
- The blending ratio shall be maintained at all times unless otherwise specified in a specific repair.
- See Detail I for example of blending.

Blendout of Multiple Pits in Corroded Area
Figure 203 (Sheet 1 of 2)

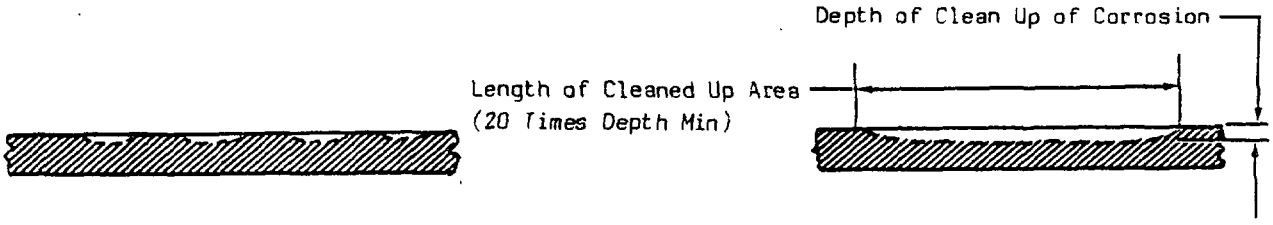
CAUTION: DO NOT USE STEEL WOOL, WIRE BRUSHES, OR SEVERE ABRASIVES WHEN REWORKING STRUCTURE FOR CORROSION. USE 240 GRIT OR FINER ALUMINUM OXIDE ABRASIVE PAPER. FINISH WITH 400 GRIT PAPER.



VIEW LOOKING DOWN



VIEW IN TRUE PERSPECTIVE



CROSS SECTION VIEW

NOT ACCEPTABLE

ACCEPTABLE

Blendout of Multiple Pits in Corroded Area
Figure 203 (Sheet 2 of 2)

HONEYCOMB INSERT - REPAIR

1. APPROVED REPAIRS

NOTE: If inserts are being installed in new honeycomb panels, omit paragraph A.

A. Remove Damaged Insert
   (1) Determine part number and maximum diameter of damaged insert.
   (2) Drill out insert. Clean hole with clean cloth and MEK. If old epoxy remains around perimeter of installation hole check it for integrity. Any epoxy not adhering to honeycomb must be removed.

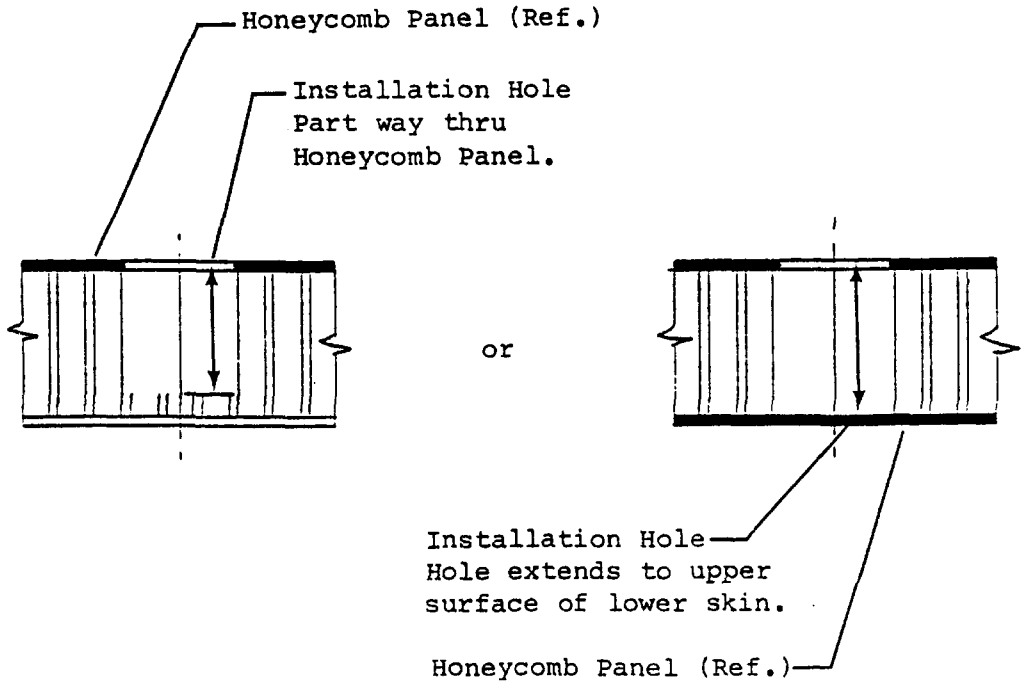
B. General Requirements
   (1) Storage of Epoxy Potting Compound
      (a) All unmixed epoxy potting compound shall be stored at 45° to 80°F (7.2° to 26.7°C). Epoxy potting compound has a storage life of 9 months at 80°F (26.7°C) when maintained in unopened original package.
      (b) Materials stored at temperatures exceeding 80°F (26.7°C) shall be used within 2 weeks.
      (c) Stocks shall be rotated to eliminate storage stability problems and retesting of the epoxy potting compound.
   (2) Mixing of Epoxy Potting Compound
      (a) The scales and weighing procedure shall be controlled so that the hardener is within ±2%, to be sure of uniform quality.
      (b) Weigh into a clean, wax-free container 100 parts by weight of SLE3009 resin. Add 25 parts by weight of SLE3009 hardener.
      (c) Weigh into a clean, wax-free container 100 parts by weight of EA9321 Part "A". Add 50 parts by weight of EA9321 Part "B".
      (d) Weigh into a clean wax-free container 100 parts by weight of SLE3006 resin. Add 27.5 parts by weight of SLE3006 hardener.
      (e) Mix components until the color is uniform, taking care not to trap air in epoxy potting compound. Entrapped air creates porosity, thereby reducing potting strength and also causes potting material to slump as entrapped air outgasses.
      (f) Mix only amount of epoxy potting compound that can be used in 30 minutes. Mixed epoxy potting compound has a pot life of 30 minutes at 75°F (23.9°C). Excessive agitation during mixing, higher ambient temperature, or large masses of material being mixed, will reduce pot life.
      (g) Load mixed epoxy potting compound into a polyethylene cartridge.
      (h) Load polyethylene cartridge into a sealing gun and install a 1/16-inch orifice nozzle.

C. Installation of Honeycomb Inserts
(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Insert Epoxy Potting Compound	SLE3009 Bulk Kit	Dalco Industries 2230 Gladwick Compton, CA 90220	
Insert Epoxy Potting Compound	Hysol EA9321	The Dexter Corp. Hysol Div. 15051 E. Don Julian Road Industry, CA 91749	
Insert Epoxy Potting Compound	SLE3006 Bulk Kit	Dalco Industries 2230 Gladwick Compton, CA 90220	
Semco Sealing Gun	No. 250		
Sealant Gun Nozzles	(for use with Sealing Gun)		
Polyethylene Cartridges			
Scales - Accuracy ±2%			
Solvent	Methyl Ethyl Ketone (MEK) per Fed. Spec. TT-M-261		

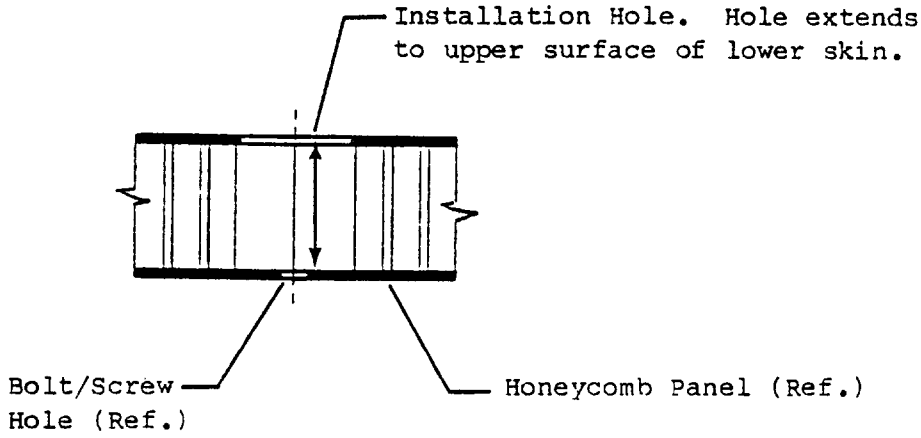
(2) Honeycomb panel preparation for blind threaded inserts.
  (a) Drill installation hole per Figure 201 to a depth slightly greater than the length of the blind threaded insert.
  (b) Refer to step C.5, C.6 or C.7 for installation procedures of insert.



First Dash No. per NAS 18XX	Thread Size and Class	Installation Hole Size (Dia - Inches)		
		NAS 1832-( ) Insert [Ref SL601-( )]	NAS 1835-( ) Insert [Ref SL606-( )]	NAS 1836-( ) Insert [Ref SL607-( )]
-06	0.1380-32 UNJC	0.561 - 0.566	---	0.452 - 0.457
-08	0.1640-32 UNJC	0.561 - 0.566	0.686 - 0.691	0.452 - 0.457
-3	0.1900-32 UNJF	0.561 - 0.566	0.686 - 0.691	0.452 - 0.457
-4	0.2500-28 UNJF	0.686 - 0.691	0.749 - 0.755	0.499 - 0.504
-5	0.3125-24 UNJF	0.686 - 0.691	0.811 - 0.817	----
-6	0.3750-24 UNJF	0.842 - 0.847	0.874 - 0.880	----

Blind Threaded Insert Installation
Figure 201

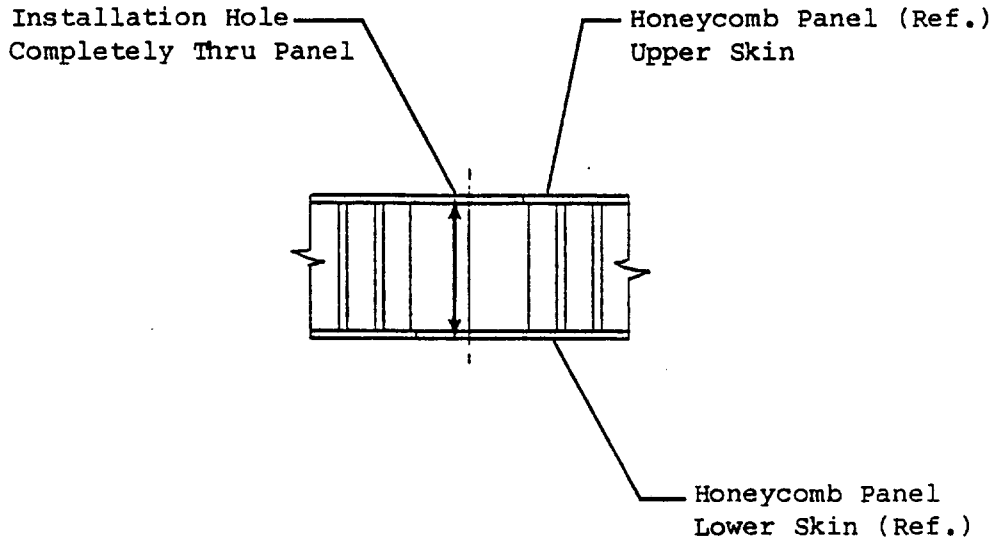
(3) Honeycomb panel preparation for spool-type inserts thru clearance hole type.
  (a) Drill installation hole per Figure 202 to the bottom honeycomb face sheet at locations.
  (b) Drill bolt or screw hole through the bottom honeycomb face sheet per Figure 202.
  (c) With a counterbore tool, clean honeycomb core and adhesive from the bottom honeycomb face sheet.
  (d) Refer to step C.8 for installation procedures of spool-type inserts.



First Dash No. Per NAS 1834 [Ref SL603-( )] or Per NAS 1833 [Ref SL602-( )]	Installation Hole Size (Inch)	Bolt or Screw Hole Diameter (Inch)
-06	0.561 to 0.566	No. 28 (0.140 +0.005/-0.001) Hole
-08	0.561 to 0.566	No. 19 (0.166 +0.005/-0.001) Hole
-3	0.561 to 0.566	No. 12 (0.189 +0.005/-0.001) Hole
-4	0.686 to 0.691	1/4 (0.250 +0.005/-0.001) Hole
-5	0.686 to 0.691	5/16 (0.312 +0.006/-0.001) Hole
-6	0.842 to 0.847	3/8 (0.374 +0.006/-0.001) Hole

Spool-Type Insert Installation
Figure 202

(4) Honeycomb Panel Preparation for Spool Type Inserts - Countersunk Clearance Hole.
(a) Drill Installation hole per Figure 203 thru core and both skins (upper and lower).



First Dash No. Per NAS 1834-( )K-( ) [Ref SL604-( )]	Nom. Clearance Hole Diameter Of Insert (Inch)	Installation Hole Diameter (Inch)
-06	0.140	0.561 to 0.566
-08	0.169	0.561 to 0.566
-3	0.196	0.561 to 0.566
-4	0.257	0.686 to 0.691
-5	0.316	0.686 to 0.691
-6	0.377	0.842 to 0.847

Spool-Type Insert (Countersunk Clearance Hole) Installation
Figure 203

(5) Installing blind inserts using tab method. (See Figure 204.)
   (a) Remove paper backing from tab. Press adhesive side of tab onto insert being careful to line up holes. Press tab down firmly so that it sticks to insert.

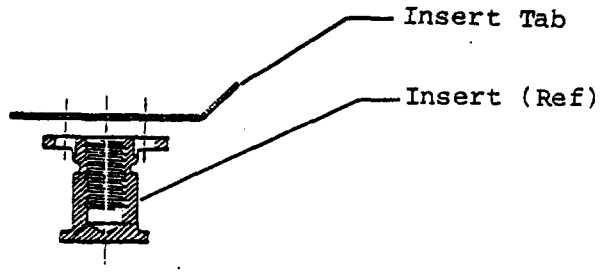
      NOTE: Tab is not required when bottom end of blind insert is seated.

   (b) Extrude a sufficient quantity of epoxy potting compound into counterbored hole to completely fill bottom portion of hole to insure that all cells underneath insert and bottom of insert are coated with the epoxy potting compound when insert is installed. (See Detail B.)
   (c) Insert prepared insert assembly into honeycomb panel installation hole. Apply adequate force to ensure that the tab will adhere to top skin of honeycomb panel.
   (d) After all inserts have been positioned in honeycomb panel, the inserts shall be potted. Inject epoxy potting compound through one potting hole.The cavity is filled when epoxy potting compound appears in the second potting hole. All honeycomb panel inserts shall be potted in this manner. (See Detail C.)
   (e) Excess epoxy potting compound may be wiped away prior to cure using clean cotton cloth dampened with MEK solvent.
   (f) After epoxy potting compound has cured for a minimum of 24 hours at room temperature, the tab shall be removed and discarded. Cure may be accelerated by baking at 140°F (60°C) for three hours. Full cure required approximately 5 days at room temperature.

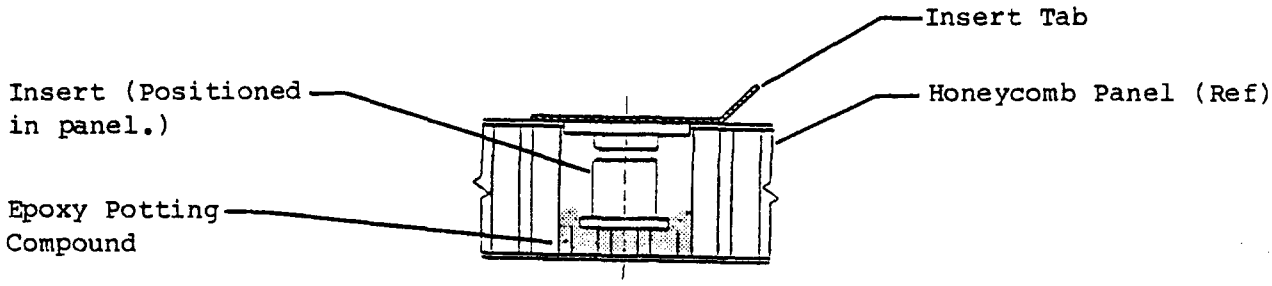
(6) Installing blind inserts using no tab (See Figure 205.)

   NOTE:
   - Bottom end of blind insert must contact inside surface of the lower face sheet of honeycomb panel.
   - Refer to Step 7 for alternate shimming method for installation of inserts without using tab method.

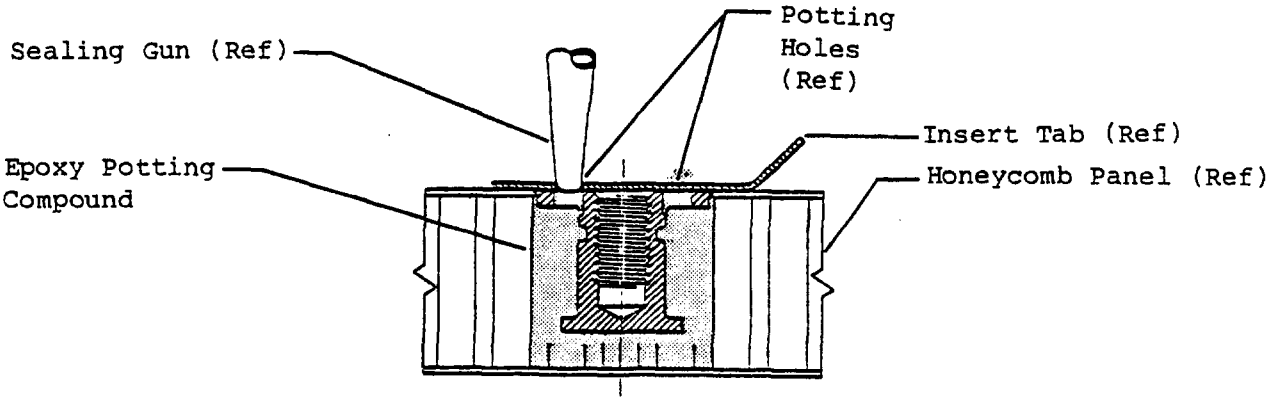
   (a) Extrude sufficient quantity of epoxy potting compound into counterbored hole to ensure that inside surface of lower skin and underneath side of insert are coated with epoxy potting compound when insert is installed.
   (b) After all inserts have been positioned in honeycomb panel, inserts shall be potted. Inject potting compound through one of the potting holes until cavity fills and potting compound starts to extrude through the second hole. Close off extrusion of potting compound from second hole and continue injection. The cavity is properly filled when potting compound extrudes through hole in skin all around circumference of upper flange of insert. All inserts shall be potted in this manner.
   (c) Repeat step (5)(e).
   (d) Repeat step (5)(f).



Detail A

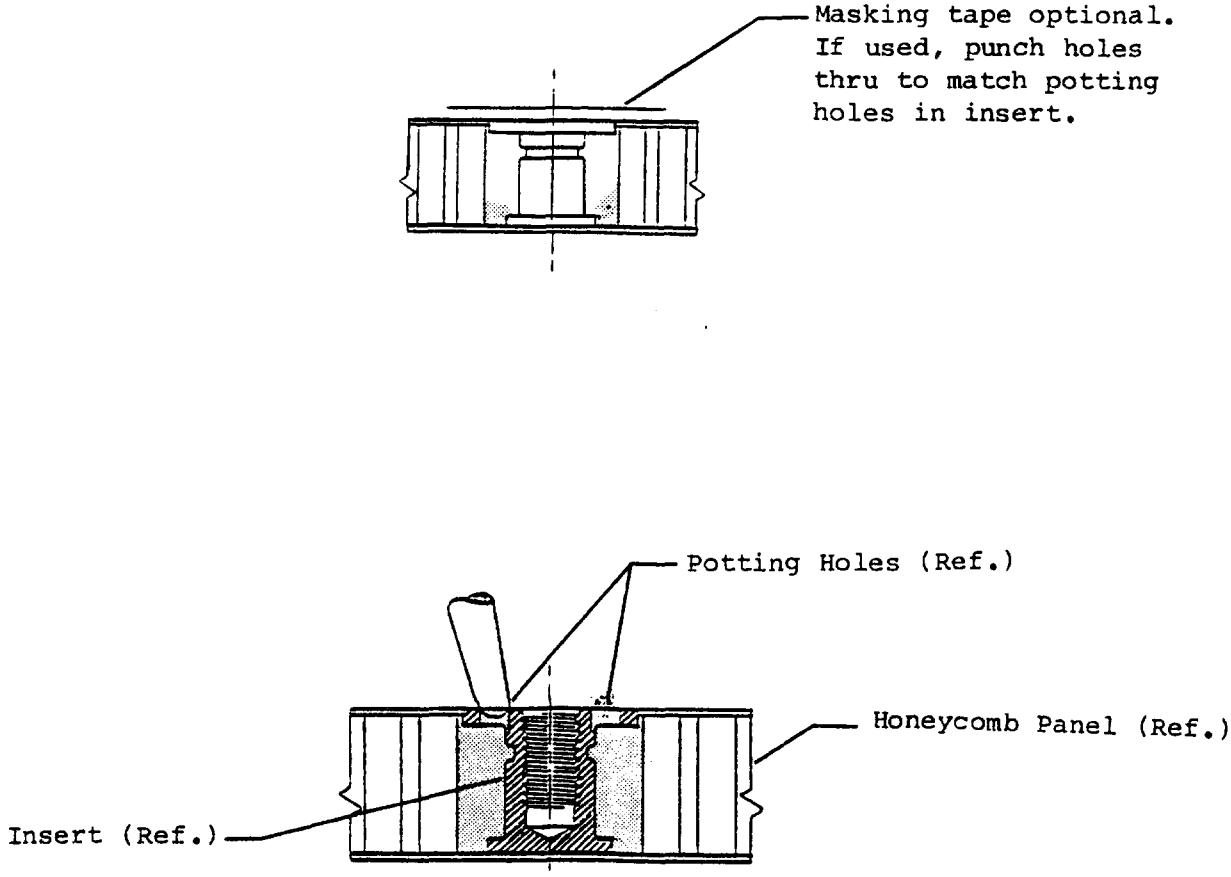


Detail B



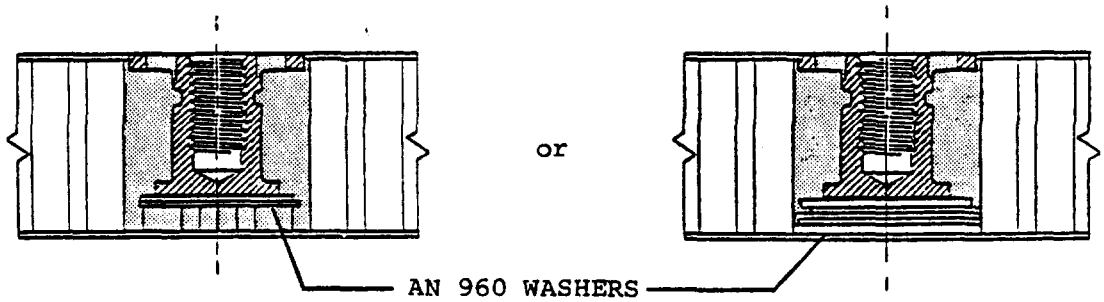
Detail C

Insert Installation Using Tab Method
Figure 204



Insert Installation Using No Tab
Figure 205

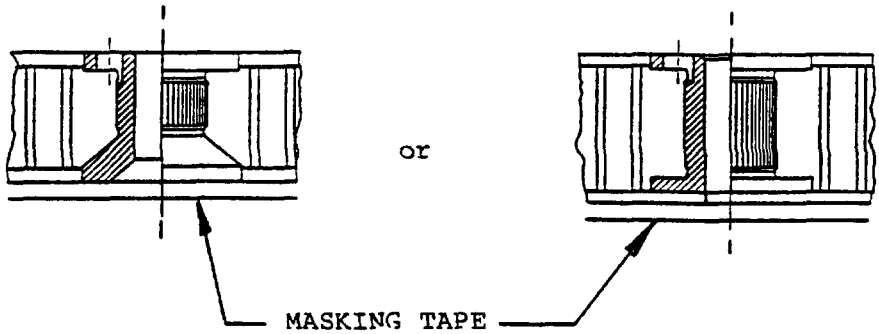
(7) Alternate Shimming Method (See Figure 206.)
   (a) It is permissible to use clean AN960 washers in bottom of hole to shim insert flush with upper surface of the honeycomb panel skin.
   (b) Determine combination of washers required.
   (c) Remove and clean washers by wiping with clean cotton cloth dampened with MEK solvent.
   (d) Extrude a sufficient quantity of epoxy potting compound into the counterbored hole to completely fill bottom portion of hole to ensure that all cells underneath insert are coated with potting compound.
   (e) Apply potting compound to all surfaces of each washer to be used for shims and position in installation hole.
   (f) Position insert into honeycomb panel installation hole. Apply sufficient force to extrude potting compound up around base flange of insert as insert is pressed into its "seated" position.
   (g) Repeat step (6)(b).
   (h) Repeat step (5)(e).
   (i) Repeat step (5)(f).



Insert Installation - Alternate Shimming Method
Figure 206

(8) Installing Spool Inserts
  (a) Apply masking tape to cover hole in honeycomb panel skin.
  (b) Install insert to contact tape.
  (c) Insert tab, masking tape, or no covering at all, may be used on upper side of inserts. If tab is used, holes in tab must be lined up with insert holes. If masking tape is used, punch holes thru tape at potting insert hole locations.
  (d) Repeat step (5)(d).
  (e) Repeat step (5)(e).
  (f) Repeat step (5)(f).

(9) Voids at either or both potting hole locations caused by slumping or sagging of the epoxy potting compound shall be permissible providing the limits of acceptability as noted below are met.
  (a) Acceptable voids must be contained to the local area of each respective potting hole and shall not extend all the way around the insert.
  (b) Maximum allowable depth of voids, as measured thru potting holes, shall be 0.35 inch.



Insert Installation - Spool Type
Figure 207

SEAT RAIL - REPAIR

1. APPROVED REPAIRS

NOTE: *All dimensions are in inches unless otherwise specified.*

A. Seat Rail Repair (See Figure 201.)

NOTE: Repair procedures for both inboard and outboard seat rails are identical unless otherwise specified.

(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Countersink (0.339x100°)		Commercially available	Countersink splice strips
Drill	#12	Commercially available	Drill holes for screws matching nutplates
Drill	#40	Commercially available	Drill holes for rivets matching nutplates
Drill	#30	Commercially available	Drill holes for rivets
Drill	#21	Commercially available	Drill holes for rivets

(2) Parts and Materials

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Rail Segment, Inboard	S-537	Learjet Inc.	Replace damaged rail
Rail Segment, Outboard	S-713	Learjet Inc.	Replace damaged rail
Strap	2384042-6	Fabricate locally from 0.080 x 2024-T3 clad	Strengthen structure at seat rail union
Splice	2384042-4	Fabricate locally from 0.080 x 2024-0 clad heat treat to T42	Strengthen structure at seat rail union

NAME	PART NUMBER	MANUFACTURER	USE
Rivet (as required)	MS20470AD5	Commercially available	Secure seat rail and strap
Rivet (as required)	MS20426AD5	Commercially available	Secure splice strip
Rivet (as required)	NAS1398B4	Commercially available	Secure diffuser/footrest
Rivet (as required)	MS20426AD3	Commercially available	Attach nutplates

(3) Repair Procedure: (See Figure 201.)

(a) Remove interior equipment and furnishings, carpet, diffusers and floorboards as required to gain access to seat rail.

CAUTION: SEAT RAIL SEGMENT BEING REPLACED SHALL BE A MINIMUM OF EIGHT EXISTING FASTENER LOCATIONS IN LENGTH.

(b) *For inboard mounted seat rail*, cut existing rail between fasteners in the vertical flange. Ensure that a minimum of four existing fastener locations may be picked up at each splice.

(c) *For outboard mounted seat rail*, cut existing rail between frames preferred, at location between fasteners in the vertical flange and between seat locking holes in top of flange. Ensure that a minimum of four existing fastener locations may be picked up at each splice.

(d) Using a #30 drill, drill out rivets securing damaged rail segment to web.

(e) Remove damaged seat rail segment.

(f) Using a #30 drill, drill out four existing rivets adjacent to forward and aft union locations.

(g) Cut new rail segment (S-537 or S-713) to fit.

NOTE: Final trim rail segment to obtain a 0.060 inch maximum gap at each end of rail segment.

(h) *For outboard mounted seat rails*, drill 5/16 holes (1.00 spacing) for seat stops in top of vertical flange. (See Detail B, Section B -B.)

(i) *For inboard mounted seat rails*, using measurements from removed seat rail, drill #12 holes in new seat rail segment for nutplates to match floorboard attachment hole pattern.

(j) Drill #21 holes in vertical flange of rail segment to match rivet holes in web. Cleco holes as drilling progresses.

(k) Fabricate two 2384042-4 splice strips. A splice strip shall be a minimum of eight existing fastener locations in length.

MATERIAL NOTE: Splices shall be fabricated from 0.080 x 2024-0 clad aluminum, final heat treated to T-42 and final finished to F4-1.

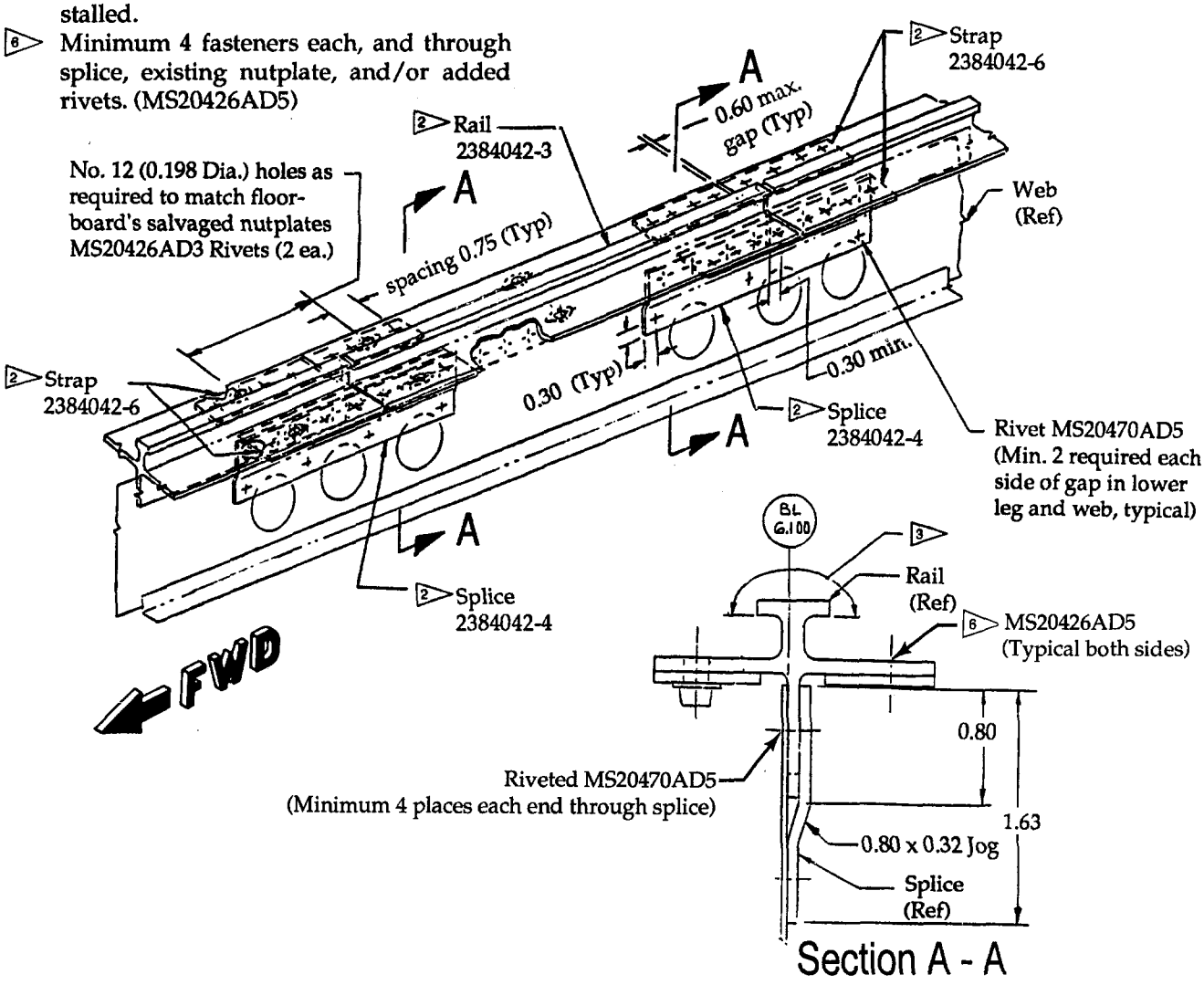
(l) Fabricate two 2384042-6 straps. A strap shall be a minimum of eight existing fastener locations in length.

MATERIAL NOTE: Straps shall be fabricated from 0.080 x 2024-T3 clad aluminum, and final finished to F4-1.

(m) Chemically treat splice strips and straps per F4-1 (refer to 51-30-04), and identify for future reference.
(n) Position splice strips across seat rail joint so slice strips cover four existing fastener locations on each side of seat rail joint. Drill #21 holes in upper leg of 2384042-4 splice strips to match existing rivet holes in web and seat rail. Cleco holes as drilling progresses.
(o) Drill four (two on each side of seat rail splice) #21 holes through lower leg of 2384042-4 splice strip and web.
(p) Countersink rivet holes in splice strips, as required.
(q) Secure splice strips to web with MS20426AD5 and MS20470AD5 rivets.
(r) *For inboard mounted seat rail*, position and clamp -6 straps across seat rail unions on lower surface of seat rail horizontal flange. Ensure that straps cover four existing fastener locations on each side of seat rail unions.
(s) *For outboard mounted seat rail*, position and clamp -6 straps across seat rail unions on upper surface of seat rail horizontal flange. Ensure that straps cover four existing fastener locations on each side of seat rail unions.
(t) *For inboard mounted seat rail*, drill #12 holes in straps to match floorboard nutplate holes in seat rail, refer to step (i).
(u) *For inboard mounted seat rail*, remove straps from seat rail. Drill #40 holes in straps for floorboard nutplates. Counter sink holes and attach floorboard salvaged nutplates to straps using MS20426AD3 rivets. Clamp straps to seat rail as described in step (r).
(v) Drill #21 rivet holes through strap to match existing rivet holes in seat rail. Drill new holes (0.75 typical spacing) through strap and new seat rail segment.
(w) Secure straps to seat rail with MS20426AD5 or MS20470AD5 rivets.
(x) Remove clamps.
(y) Install diffusers, floorboards, carpet and other previously removed equipment and furnishings.
(z) Restore aircraft to normal.
(aa) Update all aircraft log books.

NOTES:

1. -|- Denotes existing fastener locations.
2. Length to be determined at installation.
3. No finish on these surfaces.
4. Rail Configurations, notches (if any) and detail length to be determined for each specific aircraft at installation.
5. For aircraft with diffuser and footrest installed.
6. Minimum 4 fasteners each, and through splice, existing nutplate, and/or added rivets. (MS20426AD5)

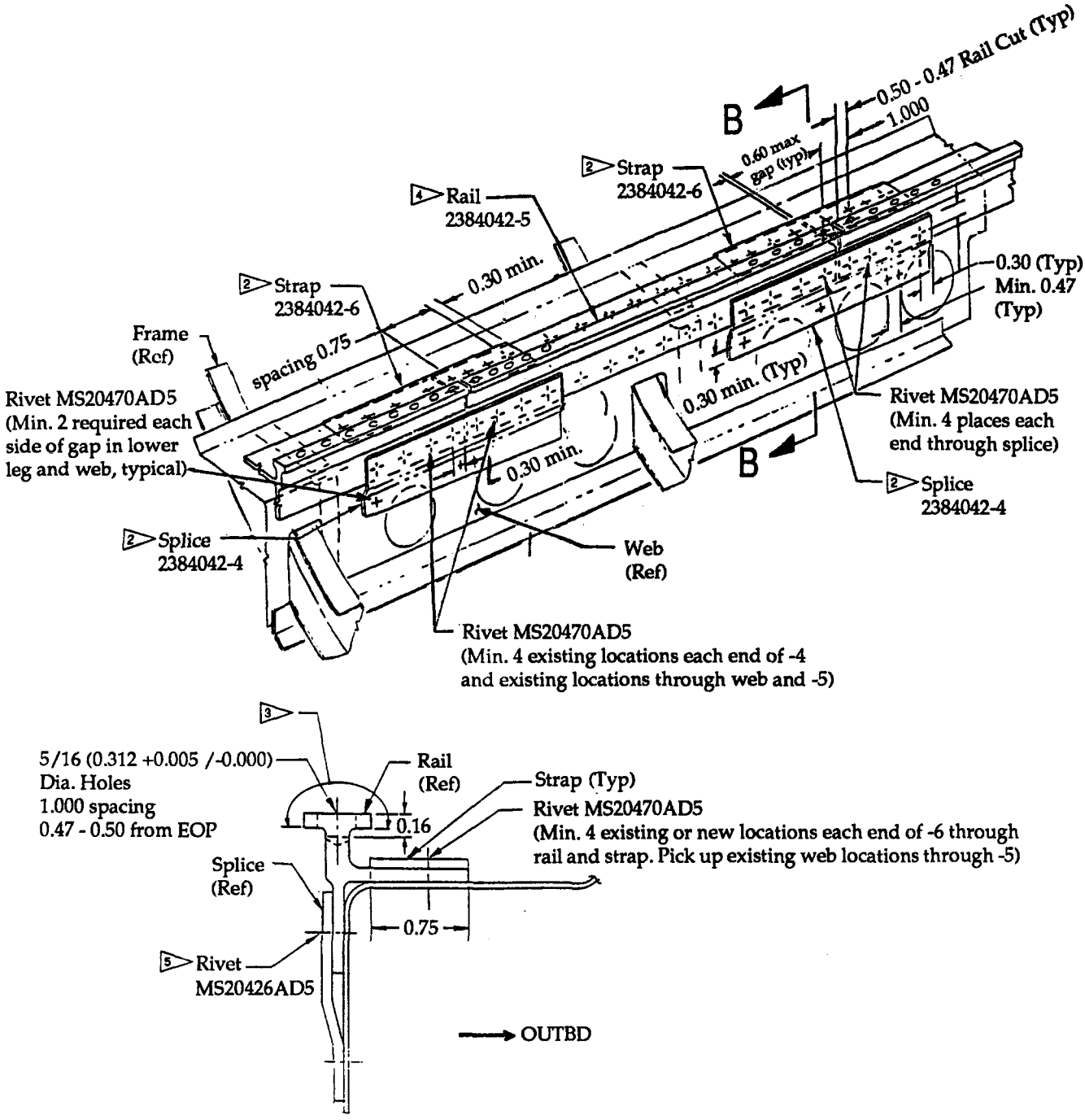


(TYPICAL INBOARD MOUNTED SEAT RAIL)

Detail A

Repro

Seat Rail Repair
Figure 201 (Sheet 1 of 2)



Section B - B

(TYPICAL OUTBOARD MOUNTED SEAT RAIL)

Detail B

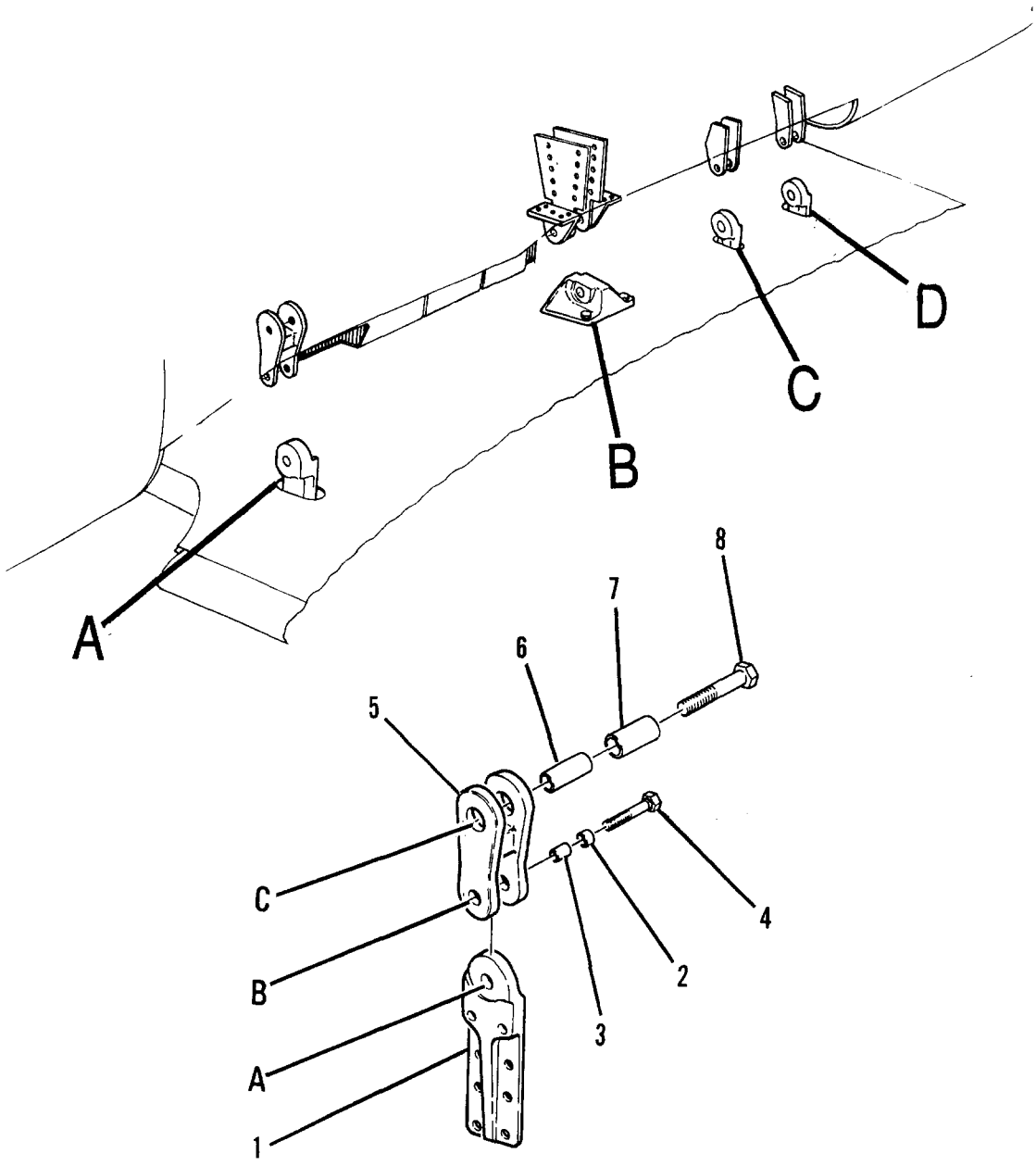
Repro

Seat Rail Repair
Figure 201 (Sheet 2 of 2)

ALLOWABLE WEAR AND REPAIR DATA - GENERAL

1. General
   A. The information in this section is provided to aid the mechanic in determining the extent of wear in a particular system or component, as well as providing procedures for specific component/structural repair. Original hole sizes, bushing sizes, bolt diameters, and manufactured allowable tolerances as well as repair materials and required treatments or processes will be listed in the appropriate repair procedure. Material and treatment variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   B. It is the responsibility of the aircraft owner/maintenance facility to determine qualifications of maintenance personnel performing inspections and repair procedures as well as to ensure all aircraft log books are properly updated following any maintenance or repair to aircraft structure. As always, a clean environment and good general shop practices shall be exercised at all times.
   C. Prior to, and after performing, any repairs on the aircraft structure, ensure serviceability and reliability of repair. If serviceability and/or reliability of repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information. Repairs must be equal to, or greater in strength, than the original structure. Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component. Limitations applied to repairs and tolerances must be followed unless Learjet engineering authority to the contrary is given.
   D. Repairs for structure not included in this section does not necessarily indicate that the structure involved is non-repairable, but that the application of a typical repair procedure to theoretical damage has not yet been developed. For repair procedures pertaining to items not covered in this section, refer to that items respective chapter.
   E. Refer to the following sections for allowable wear and repair data:

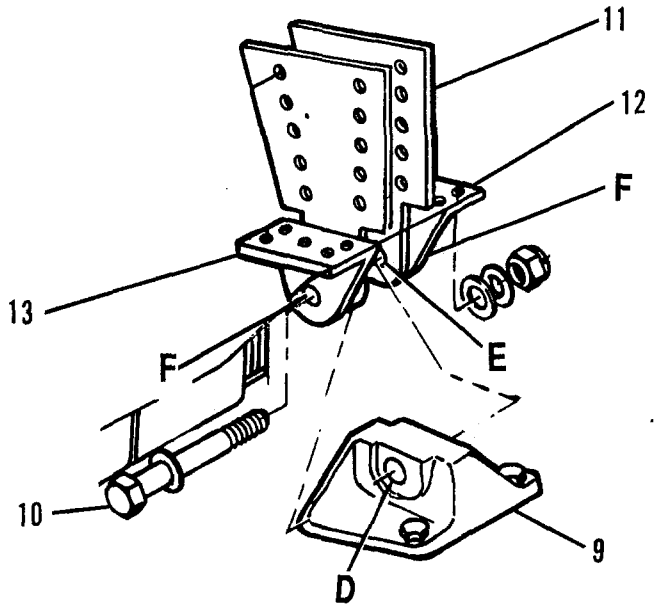
51-71-01 - Wing-to-Fuselage Fittings
51-71-02 - Flap Fittings
51-71-03 - Spoiler Fittings
51-71-04 - Aileron System
51-71-05 - Tip Tank Fittings
51-71-06 - Landing Gear Fittings
51-71-07 - Engine Mount Fittings
51-71-08 - Rudder Control System
51-71-09 - Horizontal Stabilizer Fittings
51-71-10 - Elevator Control System
51-71-11 - Keelbeam Assembly
51-71-12 - Mach Trim System
51-71-13 - Control Column Assembly
51-71-14 - Passenger/Crew Upper Door (36-Inch)
51-71-15 - Passenger/Crew Lower Door (36-Inch)
51-71-16 - Passenger/Crew Upper Door (24-Inch)
51-71-17 - Passenger/Crew Lower Door (24-Inch)
51-71-18 - Quadrant Assembly
51-71-19 - MLG Power Brake Valve Linkage
51-71-20 - Main Gear Door and Uplatch
51-71-21 - Main Gear Shock Strut
51-71-22 - Nose Gear Shock Strut
51-71-23 - Main Gear Actuator
51-71-24 - Main Gear Door Uplatch Mechanism
51-71-25 - Nose Gear Actuator
51-71-26 - Nose Gear Uplatch
51-71-27 - Nose Gear Door Mechanism
51-71-28 - Flap Preselect Assembly



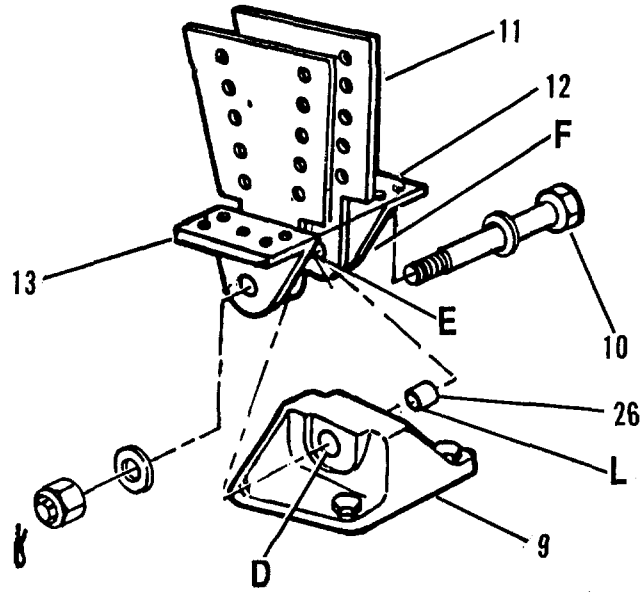
(TYPICAL)

Detail A

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 9)



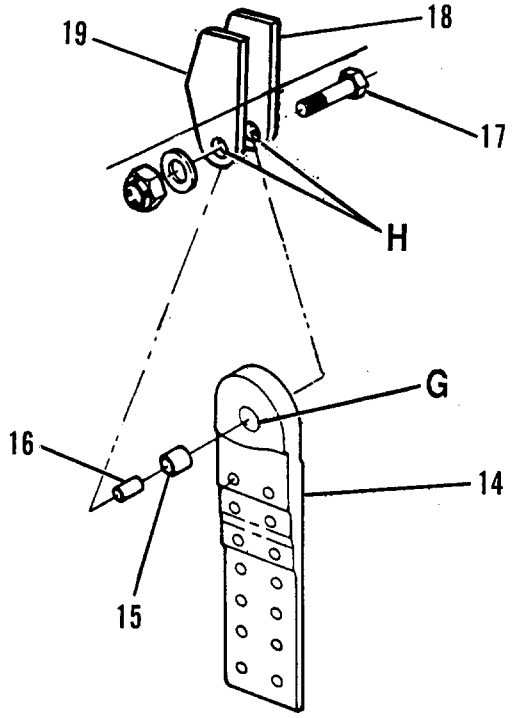
(On All Except Aircraft 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-020)



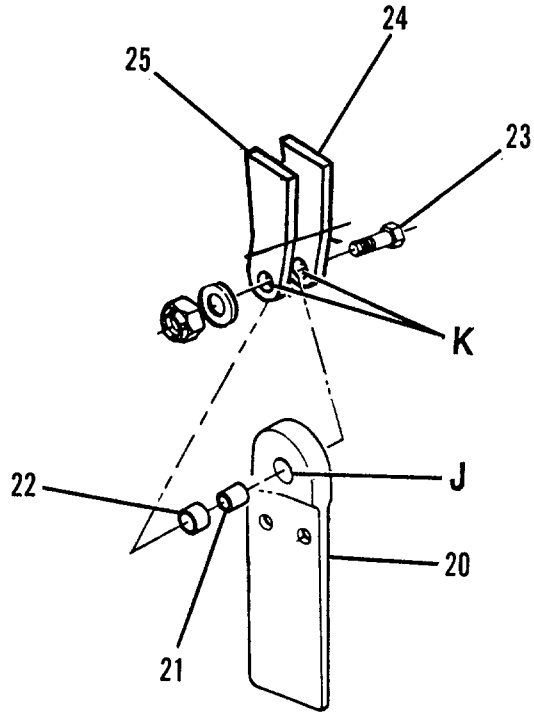
(On Aircraft 28-001 and Subsequent; 29-001 and Subsequent; 31-021 and Subsequent)

Detail B

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 9)



Detail C



Detail D

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Fitting, Spar No. 2 - 2322275-1, -2, -3, -4	18	A	0.5620	–	±0.0100	–	–	–
2	Bushing – NAS75-10-016	12	A	0.6250	0.8142	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
	NAS75-9-016	11	A	0.5625	0.6892	+0.0015/ -0.0000	+0.0000/ -0.00010	–	–
3	Bushing - NAS75-8-026	12	A	0.5000	0.6265	+0.0015/ -0.0000	+0.0000/ -0.0008	–	–
	NAS75-7-026	11	A	0.4375	0.5638	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
4	Bolt - NAS6208-22	12	A	–	0.4995	–	+0.0001/ -0.0010	–	–
	AN7-17A	11	A	–	0.4330	–	+0.0004/ -0.0000	–	–
5	Fitting - 2311161-23	12	B	0.4991	–	+0.0015/ -0.0000	–	–	–
			C	0.7500	–	±0.0005	–	–	–
	2311161-8	11	B	0.4370	–	+0.0010/ -0.0000	–	–	–
			C	0.6875	–	±0.0005	–	–	–
6	Bushing - 2311161-20	2	C	0.4991	0.6219	+0.0015/ -0.0000	±0.0005	–	–
	2311161-6	5	C	0.4875	0.5608	±0.0005	±0.0005	–	–
7	Bushing - 2311161-21	2	C	0.6236	0.7514	+0.0000/ -0.0050	+0.0000/ -0.0007	–	–
	2311161-9	5	C	0.5625	0.6889	+0.0000/ -0.0050	+0.0000/ -0.0007	–	–
8	Bolt - NAS464P7L29	11	C	–	0.4367	–	+0.0000/ -0.0009	–	–
	Bolt - NAS464P8L29	9	C	–	0.4991	–	+0.0000/ -0.0009	–	–
9	Fitting, Spar No. 5 - 2822172-1, -2	12	D	0.5620	–	+0.0040/ -0.0000	–	–	–
	2322278-6, -9	6	D	0.4375	–	±0.0005	–	–	–
	2322278-7, -11	7	D	0.4370	–	+0.0040/ -0.0000	–	–	–
	2322278-3, -5, -9 -4, -6, -10	13	D	0.4375	–	±0.0005	–	–	–
	2322278-11, -12	14	D	0.4370	–	+0.0040/ -0.0000	–	–	–

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 9)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
10	Bolt - EWSBM22-9-30	3	D	–	0.5616	–	+0.0000/ -0.0009	–	–
	EWSB26-9-30	4	D	–	0.5616	–	+0.0000/ -0.0009	–	–
	EWSB22-7-A30	5	D	–	0.4367	–	+0.0000/ -0.0009	–	–
	(Alt. EWSBM26-7-30)	5	D	–	0.4367	–	+0.0000/ -0.0009	–	–
	AN7-22A	10	D	–	0.4370	–	-0.0000/ +0.0004	–	–
11	Fitting - 2311181-7, -8	8	E	0.5620	–	+0.0040/ -0.0000	–	–	–
	2311181-3, -4		E	0.5616	–	+0.0015/ -0.0000	–	–	–
	2311181-1, -2, -5, -6	11	E	0.4370	–	+0.0040/ -0.0000	–	–	–
	2311181-7, -8	2	E	0.5620	–	+0.0040/ -0.0000	–	–	–
12	Drag Block, Aft -								
	2311370-33 LH & RH -39 LH & RH	15	F	0.4680	–	+0.0060/ -0.0010	–	–	–
	2411371-3 LH & RH	16	F	0.4680	–	±0.0100	–	–	–
	(Alt. 2411371-17, -18)		F	0.5938	–	±0.0100	–	–	–
	2411371-5, -6	8	F	0.5938	–	±0.0100	–	–	–
	(Alt. 2411371-15, -16)		F	0.5938	–	±0.0100	–	–	–
	2411371-15, -16	2	F	0.5938	–	±0.0100	–	–	–
13	Drag Block, Fwd -								
	2311370-34 LH & RH -38 LH & RH	15	F	0.4680	–	+0.0060/ -0.0010	–	–	–
	2411371-1	17	F	0.5938	–	±0.0100	–	–	–
	(Alt. 2411371-11)		F	0.5938	–	±0.0100	–	–	–
	2411371-2066-1, -2	8	F	0.5938	–	±0.0100	–	–	–
	(Alt. 2411371-9, -10)		F	0.5938	–	±0.0100	–	–	–
	2411371-1, -9, -10	1	F	0.5938	–	±0.0100	–	–	–
	(Alt. 2411371-11)		F	0.5938	–	±0.0100	–	–	–
14	Fitting, Spar No. 7 -								
	2822171-3, -4	18	G	0.5620	–	+0.0080/ -0.0010			

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 9)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
15	Bushing - NAS75-10-016	18	G	0.6250	0.8142	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
16	Bushing - NAS75-8-021	19	G	0.5000	0.6265	+0.0015/ -0.0000	+0.0000/ -0.0008	–	–
	NAS75-8-026	1	G	0.5000	0.6265	+0.0015/ -0.0000	+0.0000/ -0.0008	–	–
17	Bolt - NAS6208-22	18	H	–	0.4995	–	+0.0001/ -0.0010		
18	Fitting, Aft - 2311201-3, -4, -7, -8, -15, -16	18	H	0.5000	–	+0.0040/ -0.0000	–	–	–
19	Fitting, Fwd - 2311201-1, -2, -5, -6, -13, -14	18	H	0.5000	–	+0.0040/ -0.0000	–	–	–
20	Fitting, Spar No. 8 - 2322281-1, -2	18	J	0.5625	–	±0.0100	–	–	–
21	Bushing - NAS75-10-016	18	J	0.6250	0.8142	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
22	Bushing - NAS75-8-021	18	J	0.5000	0.6265	+0.0015/ -0.0000	+0.0000/ -0.0008	–	–
23	Bolt - NAS6208-22	18	J	–	0.4995	–	+0.0000/ -0.0010	–	–
24	Fitting, Aft - 2311211-1, -2, -3, -4, -5, -6, -7, -8, -9, -10	18	K	0.5040	–	+0.0000/ -0.0040	–	–	–
25	Fitting, Aft - 2311212-1, -2, -3, -4, -5, -6, -7, -8, -9, -10	18	K	0.5040	–	+0.0000/ -0.0040	–	–	–
26	Bushing - NAS537-9- 50	3	L	0.5620	–	+0.0015/ -0.0000	–	–	–
	(Alt. NAS75-9-016)		L	0.5620	–	+0.0015/ -0.0000	–	–	–

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 9)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Fitting, Spar No. 2 - 2322275-1, -2, -3, -4	18	--	Replace worn part. Ream hole A to 0.8125 (±0.0005).
2	Bushing - NAS75-10-016	12	A	Replace worn part.
	NAS75-9-016	11	A	Replace worn part.
3	Bushing - NAS75-8-026	12	A	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236).
	NAS75-7-026	11	A	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236).
4	Bolt - NAS6208-22	12	A	Replace worn part.
	AN7-17A	11	A	Replace worn part.
5	Fitting - 2311161-23	12	B	Replace worn part.
		12	C	Replace worn part.
	2311161-8	11	B	Replace worn part.
		11	C	Replace worn part.
6	Bushing - 2311161-20	2	C	Replace worn part.
	2311161-6	5	C	Replace worn part.
7	Bushing - 2311161-21	2	C	Replace worn part. Install new bushing with wet primer on exterior surface. Ream bushing (7) to 0.6236 (+0.0005/-0.0002) after assembly in fitting (5).
	2311161-9	5	C	Replace worn part. Install new bushing with wet primer on exterior surface. Ream bushing (7) to 0.5625 (+0.0005/-0.0002) after assembly in fitting (5).
8	Bolt - NAS464P7L29	11	C	Replace worn part.
	NAS464P8L29	9	C	Replace worn part.
9	Fitting, Spar No. 5 – 2822172-1, -2	12	D	Replace worn part.
	2322278-6, -9	6	D	Replace worn part.
	2322278-7, -11	7	D	Replace worn part.
	2322278-3, -5, -9, -4, -6, -10	13	D	Replace worn part.
	2322278-11, -12	14	D	Replace worn part.
10	Bolt - EWSBM22-9-30	3	D	Replace worn part.
	EWSB26-9-30	4	D	Replace worn part.
	EWSB22-7-A30	5	D	Replace worn part.
	(Alt. EWSBM26-7-30)	5	D	Replace worn part.
	AN7-22A	10	D	Replace worn part.
11	Fitting - 2311181-7, -8	2	E	Replace worn part.
	2311181-1, -2, -5, -6	11	E	Replace worn part.
	2311181-3, -4, -7, -8	8	E	Replace worn part.

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 9)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
12	Drag Block, Aft -			
	2311370-33, -39	15	F	Replace worn part.
	2411371-3 (Alt. 2411371-17, -18)	16	F	Replace worn part.
	2411371-5, -6 (Alt. 2411371-15, -16)	8	F	Replace worn part.
	2411371-15, -16	2	F	Replace worn part.
13	Drag Block, Fwd -			
	2311370-34, -38	15	F	Replace worn part.
	2411371-1 (Alt. 2411371-11)	17	F	Replace worn part.
	2411371-2066-1, -2 (Alt. 2411371-9, -10)	8	F	Replace worn part.
	2411371-1, -9, -10 (Alt. 2411371-11)	1	F	Replace worn part.
14	Fitting, Spar No. 7 - 2822171-3, -4	18	G	Replace worn part. Ream hole G to 0.8125 (±0.0005).
15	Bushing - NAS75-10-016	18	G	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236). Ream bushing (15) to 0.6273 (±0.0005) after installation.
16	Bushing - NAS75-8-021	19	G	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236).
	NAS75-8-026	1	G	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236).
17	Bolt - NAS6208-22	18	H	Replace worn part.
18	Fitting, Aft - 2311201-3, -4, -7, -8, -15, -16	18	H	Replace worn part.
19	Fitting, Fwd - 2311201-1, -2, -5, -6, -13, -14	18	H	Replace worn part.
20	Fitting, Spar No. 8 - 2322281-1, -2	18	J	Replace worn part. Ream hole J to 0.8125 (±0.0005).
21	Bushing - NAS75-10-016	18	J	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236). Ream bushing (21) to 0.6273 (±0.0005) after installation.
22	Bushing - NAS75-8-021	18	J	Replace worn part. Install new bushing with light coat of petrolatum (VV-P-236).
23	Bolt - NAS6208-22	18	J	Replace worn part.

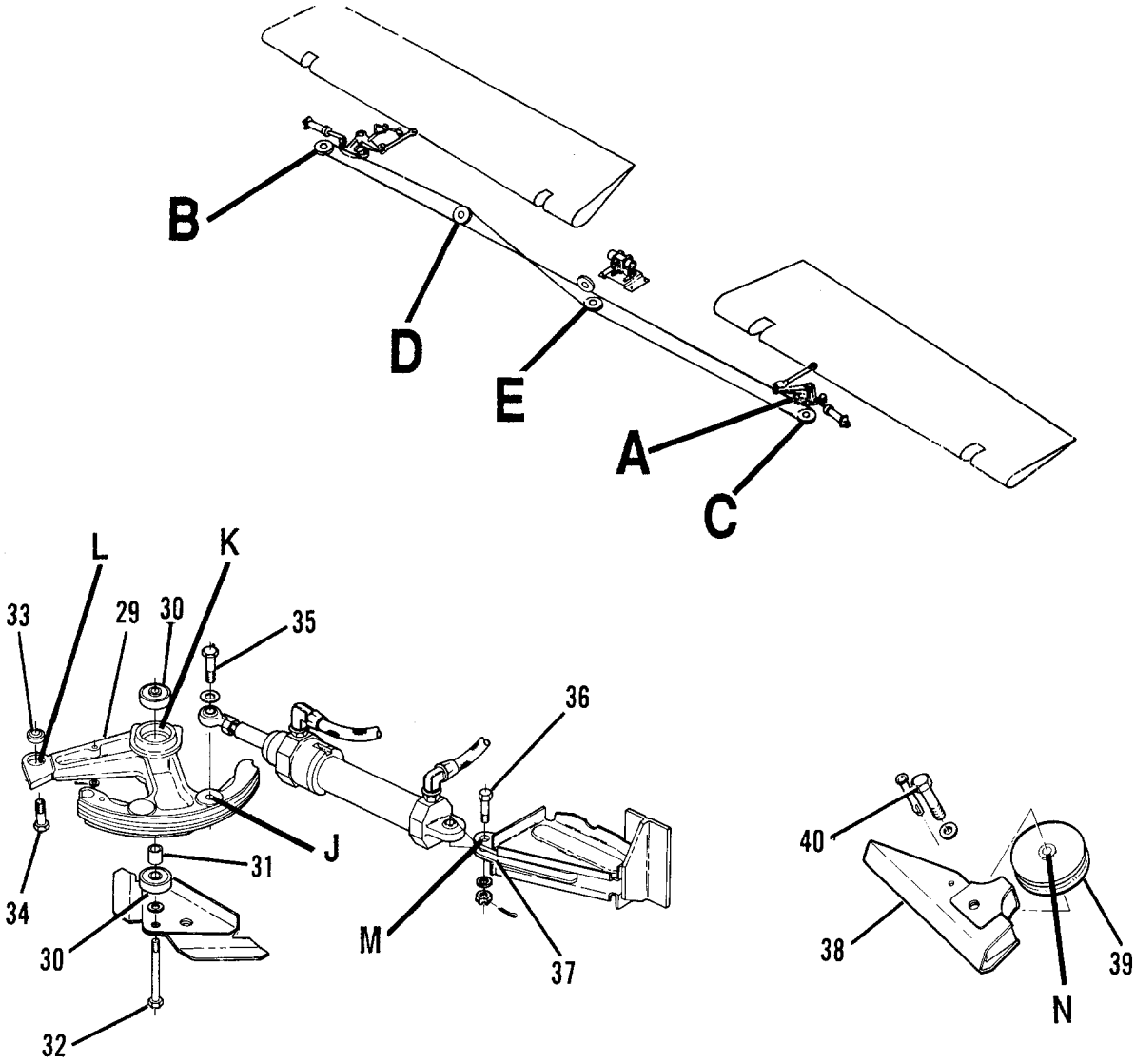
Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 9)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
24	Fitting - 2311211-1, -3, -5, -7, -9	18	K	Replace worn part.
25	Fitting - 2311212-1, -3, -5, -7, -9 -2, -4, -6, -8, -10	1	K	Replace worn part.
26	Bushing - NAS537-9-050 (Alt. NAS75-9-016)	3	L	Replace worn part. Ream bushing (26) to 0.5620 (+0.0004/-0.0000) after installation.

CODES	EFFECTIVITIES
1	31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	31-001 and Subsequent
3	28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-020
4	31-021 and Subsequent and Prior Aircraft Equipped With EWSBM26-9-30 Bolt
5	35-001 and Subsequent; 36-001 and Subsequent
6	35-001 thru 35-009; 36-001 thru 36-005
7	35-010 and Subsequent; 36-006 and Subsequent; and Prior Aircraft Equipped With 2322278-11 Spar Fitting
8	28-001 and Subsequent; 29-001 and Subsequent
9	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent
10	23-001 and Subsequent; 24-100 and Subsequent; 25-001 and Subsequent
11	23-001 and Subsequent; 24-100 and Subsequent; 25-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
12	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent
13	23-001 thru 23-099; 24-100 thru 24-299; 25-001 thru 25-183
14	24-300 and Subsequent; 25-184 and Subsequent
15	23-001 thru 23-099; 24-100 thru 24-229, Except 24-218; 25-001 thru 25-066, Except 25-061
16	24-218, 24-230 and Subsequent; 25-061, 25-067 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
17	24-218, 24-230 and Subsequent; 25-061, 25-067 and Subsequent
18	23-001 and Subsequent; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
19	23-001 and Subsequent; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent

Wing-to-Fuselage Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 9)



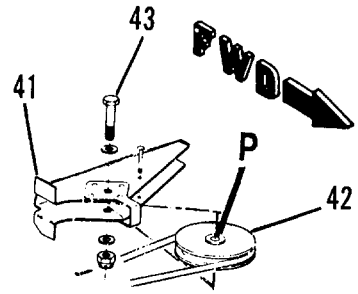
Detail A

Detail B

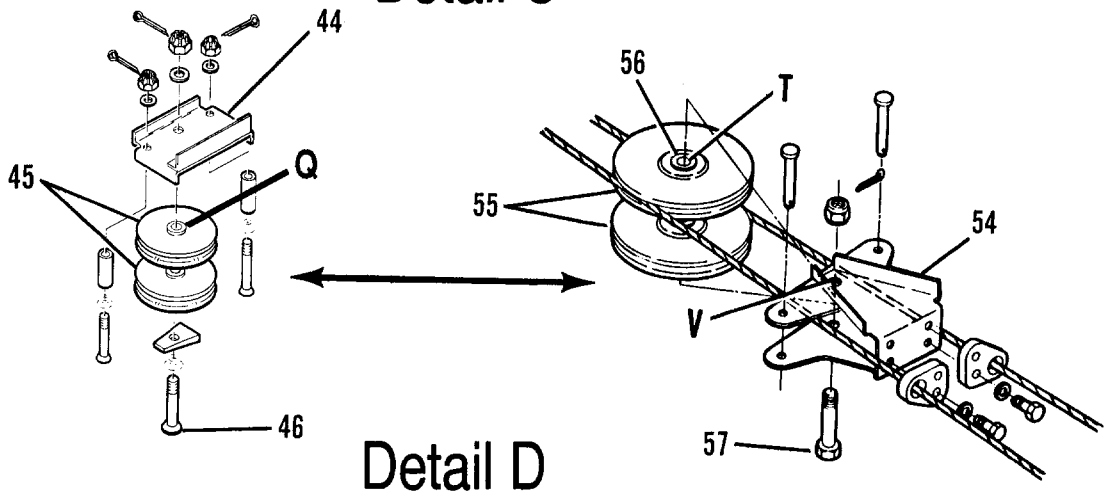
(TYPICAL)

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 14)

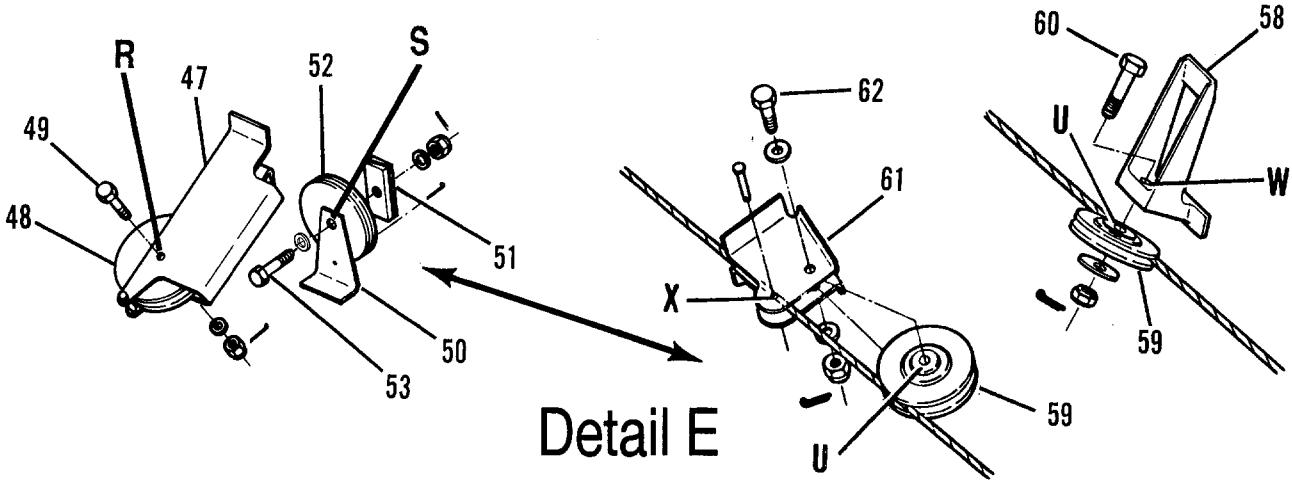
FLAP FITTINGS - ALLOWABLE WEAR AND REPAIR DATA



Detail C



Detail D

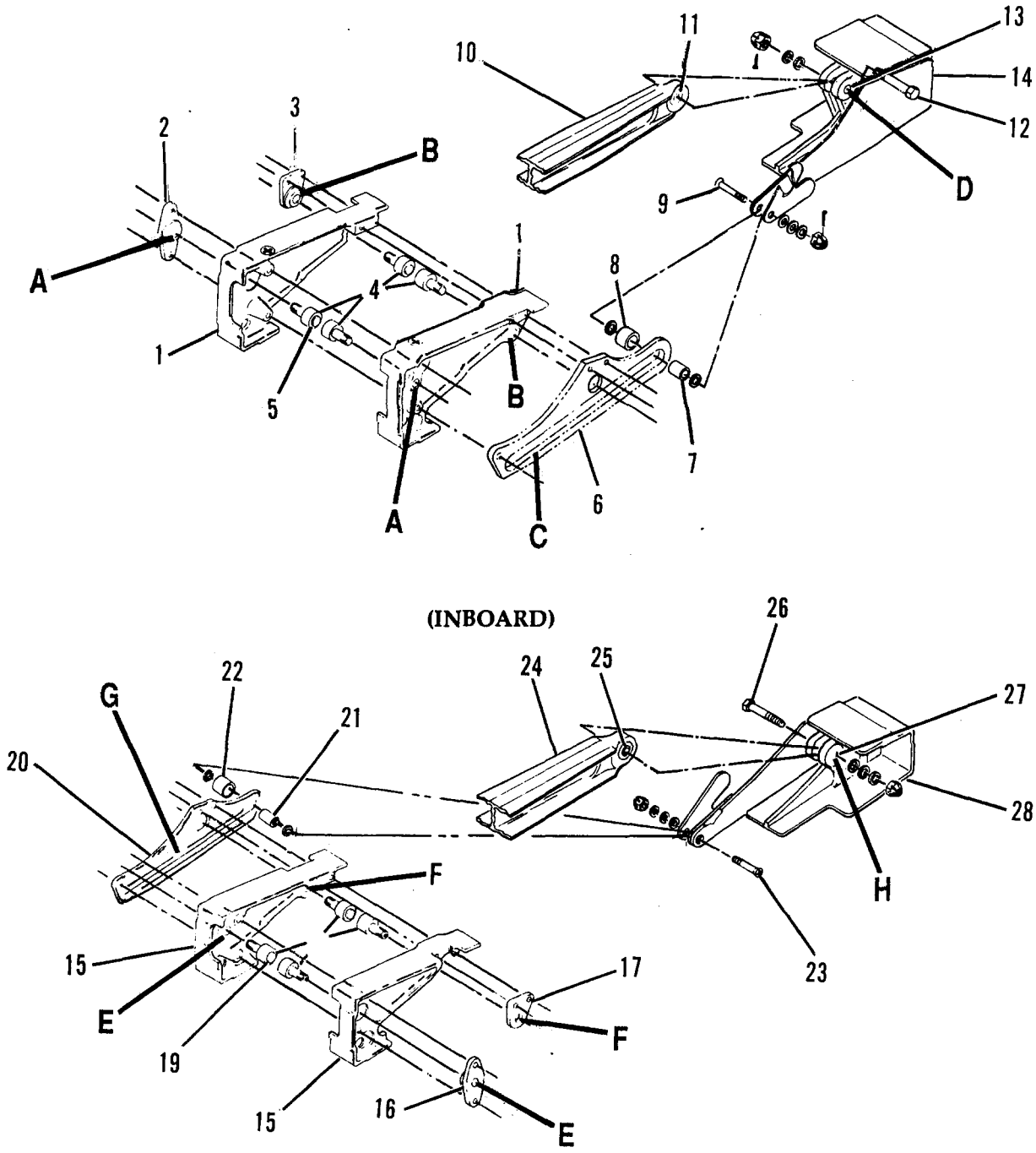


Detail E

(TYPICAL)

8-4A-1
8-6A
8-6C-1

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 14)



A8-6C-2
B8-33C
C8-116A
D8-33C
E8-85A

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 14)

EFFECTIVITY: ALL

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Support - Inner (LH) - 2322511-15, -23, -31, -41, -55	1	A	0.4390	–	+0.0020/ -0.0000	–	–	–
			B	0.430	–	+0.0020/ -0.0000	–	–	–
	Inner (RH) - 2322511-16, -24, -30, -42, -56	1	A	0.4390	–	+0.0020/ -0.0000	–	–	–
			B	0.430	–	+0.0020/ -0.0000	–	–	–
	Outer (LH) - 2322511-17, -25, -29, -39, -53	1	A	0.4390	–	+0.0020/ -0.0000	–	–	–
			B	0.4390	–	+0.0020/ -0.0000	–	–	–
	Outer (RH) - 2322511-18 -26, -28, -40, -54	1	A	0.4390	–	+0.0020/ -0.0000	–	–	–
			B	0.4390	–	+0.0020/ -0.0000	–	–	–
2	Cap - 2322511-9, -45	1	A	0.4390	–	+0.0020/ -0.0000	–	–	–
3	Cap - 2322511-8, -43	1	B	0.4390	–	+0.0020/ -0.0000	–	–	–
4	Cam Follower - CF-1-S-CP	1	A, B	–		–		–	–
	(Alt. CRS-16CP)		A, B	–		–		–	–
	(Alt. CTA-31X-65)		A, B	–		–		–	–
	(Alt. CR-1X-65)		A, B	–		–		–	–
	CF-7/8-S-CP	1	A, B	–		–		–	–
	(Alt. CRS-14CP)		A, B	–		–		–	–
	(Alt. CTA-27X-41)		A, B	–		–		–	–
	(Alt. CR-7/8-27X-41)		A, B	–		–		–	–
	(Alt. CR-7/8-X-41)		A, B	–		–		–	–
5	Button - 2322513-1, -2	1	–	0.1900	–	+0.0020/ -0.0000	–	–	–
6	Nose Track - 2322511-7, -27, -44, -46, -57	1	C	0.7550	–	+0.0050/ -0.0020	–	–	–
7	Bushing - NAS76A4-21	1	C	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
8	Roller - 2325000-3	1	C	0.3800	0.7500	+0.0000/ -0.0020	±0.0010	–	–

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 14)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
9	Bolt - NAS334CP12-5	2	C	–	0.2492	–	+0.0000/ -0.0009	–	–
	NAS334CP13	3	C	–	0.2492	–	+0.0000/ -0.0009	–	–
10	Track Assy. - 2325022-5, -9, -14, -16	1	D	0.8140	–	±0.0010	–	–	–
11	Bearing - BSSR-6530	1	D	0.3750	0.8125	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	(Alt. MS21231-6)		D	0.3750	0.8125	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	(Alt. ADW-6)		D	0.3750	0.8125	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
12	Bolt - AN6-15	2	D	–	0.3710	–	+0.0030/ -0.0000	–	–
	AN6-12	3							
13	Bushing - NAS72-6-005	3	D	0.3750	0.5605	+0.0010/ -0.0005	+0.0000/ -0.0010	–	–
14	Inboard Track Attach Fitting (LH) - 2625023-7, -9, -11, -15, -17, -21	4	D	0.5625	–	+0.0010/ -0.0000	–	–	–
	2492007-1	5	D	0.5625	–	+0.0010/ -0.0000	–	–	–
	(RH) - 2625023-8, -10, -12, -16, -18, -22	4	D	0.5625	–	+0.0010/ -0.0000	–	–	–
	2490007-2	5	D	0.5625	–	+0.0010/ -0.0000	–	–	–
15	Support - Inner (LH) - 2322512-6, -17, -19, -51	1	E	0.4390	–	+0.0020/ -0.0000	–	–	–
			F	0.4390	–	+0.0020/ -0.0000	–	–	–
	Inner (RH) - 2322512-5, -16, -30, -52	1	E	0.4390	–	+0.0020/ -0.0000	–	–	–
			F	0.4390	–	+0.0020/ -0.0000	–	–	–
	Outer (LH) - 2322512-4, -15, -27, -49	1	E	0.4390	–	+0.0020/ -0.0000	–	–	–
			F	0.4390	–	+0.0020/ -0.0000	–	–	–
	Outer (RH) - 2322512-3, -14, -28, -50	1	E	0.4390	–	+0.0020/ -0.0000	–	–	–
			F	0.4390	–	+0.0020/ -0.0000	–	–	–

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 14)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
16	Cap - 2322512-9, -31, -32	1	E	0.3760	–	+0.0020/ -0.0000	–	–	–
17	Cap - 2322512-8	1	F	0.3760	–	+0.0020/ -0.0000	–	–	–
18	Cam Follower - CF-7/8-S-CP	1	E	–	–	–	–	–	–
			F	–	–	–	–	–	–
	(Alt. CRS-14CP)		E	–	–	–	–	–	–
			F	–	–	–	–	–	–
	(Alt. CTA-27X-41)		E	–	–	–	–	–	–
			F	–	–	–	–	–	–
	(Alt. CR-7/8-27X-41)		E	–	–	–	–	–	–
			F	–	–	–	–	–	–
	(Alt. CR-7/8-X-41)		E	–	–	–	–	–	–
			F	–	–	–	–	–	–
19	Button - 2322513-2 (Alt. 2322513-1)	1	–	–	0.1900	–	+0.0020/ -0.0000	–	–
20	Nose Track - 2322512-7, -13, -37	1	G	0.7550	–	+0.0050/ -0.0020	–	–	–
21	Bushing - NAS76A4-021	1	G	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
22	Roller - 2325000-3	1	G	0.3800	0.7500	+0.0000/ -0.0020	±0.0010	–	–
23	Bolt - NAS334CP12-5	2	G	–	0.2492	–	+0.0000/ -0.0009	–	–
	NAS334CP13	3	G	–	0.2492	–	+0.0000/ -0.0009	–	–
24	Track Assy. - 2325022-1, -10, -13, -15	1	H	0.6890	–	±0.0010	–	–	–
25	Bearing - BSSR-5235 (Alt. MS21231-5)	1	H	0.3125	0.6875	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
26	Bolt - AN5-11	2	H	–	0.3108	–	+0.0009/ -0.0000	–	–
	NAS464P5-17	3	H	–	0.3108	–	+0.0009/ -0.0000	–	–
27	Bushing - NAS72-5-005	3	H	0.3125	0.4980 -0.0005	+0.0010/ -0.0001	+0.000/	–	–

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 14)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
28	Outboard Track Attach Fitting (LH) - 2625024-3, -5, -7	1	H	0.5000	–	+0.0010/ -0.0000	–	–	–
	(RH) r 2625024-4, -6, -8	1	H	0.5000	–	+0.0010/ -0.0000	–	–	–
29	Sector - 2625031-1, -2, -6	6	J	0.3747	–	+0.0015/ -0.0000	–	–	–
			K	1.2500	–	+0.0050/ -0.0000	–	–	–
			L	0.7500	–	+0.0100/ -0.0000	–	–	–
	2625031-9, -10	7	J	0.3747	–	+0.0015/ -0.0000	–	–	–
			K	1.2500	–	+0.0050/ -0.0000	–	–	–
			L	0.7500	–	+0.0100/ -0.0000	–	–	–
	2625031V1-1, -2	8	J	0.3747	–	+0.0015/ -0.0000	–	–	–
			K	1.2500	–	+0.0050/ -0.0000	–	–	–
			L	0.7500	–	+0.0100/ -0.0000	–	–	–
	2625031-13, -14	9	J	0.3747	–	+0.0015/ -0.0000	–	–	–
			K	1.2500	–	+0.0050/ -0.0000	–	–	–
			L	0.7490	–	+0.0100/ -0.0000	–	–	–
30	Bearing - AN200KP5 (Alt. MS27640-5)	1	K	0.3125	1.2500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
31	Spacer - NAS43DD5-79	1	K	0.3200	0.4280	+0.0400/ -0.0000	+0.020/ -0.0000	–	–
32	Bolt - NAS1305-42H	10	K	–	0.3110	–	+0.0010/ -0.0000	–	–
	NAS6605-44	11	K	–	0.3110	–	+0.0010/ -0.0000	–	–

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 14)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
33	Bearing - MS21233-5	1	L	0.3125	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
34	Bolt - NAS464P5-10	1	L	–	0.3108	–	+0.0000/ -0.0009	–	–
35	Bolt - NAS464P6-28	1	J	–	0.3742	–	+0.0000/ -0.0009	–	–
36	Bolt - NAS464P4-11	1	M	–	0.2492	–	+0.0000/ -0.0009	–	–
37	Bracket Assy. - 2325079-3, -4, -11, -12, -17, -18	1	M	0.0250	–	–	+0.0005/ -0.0000	–	–
38	Bracket Assy. - 2425081-1, -11	1	N	0.3120	–	±0.0100	–	–	–
39	Pulley - MS20221-A1	1	N	0.3125	2.6250	+0.0000/ -0.0005	±0.005	–	–
40	Bolt - NAS1305-19H	1	N	–	0.3110	+0.0010/ -0.0000	–	–	–
41	Bracket Assy. - 2325080-1, -11	1	P	0.3120	–	±0.0100	–	–	–
42	Pulley – MS20221-A1	1	P	0.3125	2.6250	+0.0000/ -0.0005	±0.005	–	–
43	Bolt - NAS464P5-15	1	P	–	0.3117	–	+0.0000/ -0.0009	–	–
44	Bracket Assy. - 2625040-57	12	Q	0.3120	–	±0.0100	–	–	–
	2625038-1, -2	13	Q	0.3120	–	±0.0100	–	–	–
45	Pulley - MS20221-A1	14	Q	0.3125	2.6250	+0.0000/ -0.0005	±0.0050	–	–
46	Screw - NAS335CP20	14	Q	–	0.3117	–	+0.0000/ -0.0009	–	–
47	Bracket - 2325080-19	14	R	0.3120	–	+0.0006/ -0.0001	–	–	–
48	Pulley - MS20221-A1	14	R	0.3125	2.6250	+0.0000/ -0.0005	±0.0005	–	–
49	Bolt - NAS464P5-12	14	R	–	0.3117	–	+0.0000/ -0.0009	–	–
50	Bracket - 2325080-20, -44, -52	14	S	0.3120	–	+0.0006/ 0.0001	–	–	–
51	Plate - 2325080-21	14	S	0.3120	–	+0.006/ -0.0001	–	–	–
52	Pulley - MS20221-A1	14	S	0.3125	2.6250	+0.0000/ -0.0005	±0.0005	–	–

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 14)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
53	Bolt - NAS464P5-17	14	S	–	0.3117	–	+0.0000/ -0.0009	–	–
54	Bracket - 2825082-4, -6	15	V	0.3160	–	+0.0000/ -0.0000	–	–	–
55	Pulley - 2815086-1	15	T	0.9370	–	+0.0000/ -0.0005	–	–	–
56	Bearing - PD5K-FS464	15	T, V	0.3125	0.9370	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
57	Bolt - NAS464P5-24	15	T	–	0.3117	–	+0.0000/ -0.0009		
58	Bracket - 2825082-1, -3	15	W	0.3160	–	+0.0000/ -0.0000	–	–	–
59	Pulley - MS20221-A1	15	U	0.3125	2.6250	+0.0000/ -0.0005	±0.0005	–	–
60	Bolt - NAS464P5-24	15	U	–	0.3117	–	+0.0000/ -0.0009		
61	Bracket - 2825083-7	15	X	0.3160	–	+0.0000/ -0.0000	–	–	–
62	Bolt - NAS464P5-13	15	U	–	0.3117	–	+0.0000/ -0.0009		

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 14)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Support -			
	Inner (LH) 2322511-15, -23, -31, -41, -55	1	A, B	Replace worn part.
	Inner (RH) 2322511-16, -24, -30, -42, -56	1	A, B	Replace worn part.
	Outer (LH) 2322511-17, -25, -29, -39, -53	1	A, B	Replace worn part.
	Outer (RH) 2322511-18, -26, -28, -40, -54	1	A, B	Replace worn part.
2	Cap - 2322511-9, -45	1	A	Replace worn part.
3	Cap - 2322511-8, -43	1	B	Replace worn part.
4	Cam Follower - CF-1-S-CP (Alt CRS-16CP) (Alt CTA-31X-65) (Alt CR-1X-65)	1	A, B	Replace worn part.
	CF-7/8-S-CP (Alt CRS-14CP) (Alt CTA-27X-41) (Alt CR-7/8-27X-41) (Alt CR-7/8-X-41)	1	A, B	Replace worn part.
5	Button - 2322513-2 (Alt. 2322513-1)	1	–	If spanwise movement (end play) of flap exceeds 0.34 inch maximum, replace buttons on cam followers (4).
6	Nose Track -			
	2322511-7, -27, -44, -46, -57	1	C	Replace worn part.
7	Bushing - NAS76A4-21	1	C	Replace worn part.
8	Roller - 2325000-3	1	C	Replace worn part.
9	Bolt - NAS334CP12-5	2	C	Replace worn part.
	NAS334CP13	3	C	Replace worn part.
10	Track Assy. - 2325022-5, -9, -14, -16	1	D	Replace worn part.
11	Bearing - BSSR-6530 (Alt. MS21231-6) (Alt. ADW-6)	1	D	Replace worn part. Secure with Loctite.
12	Bolt - AN6-15	2	D	Replace worn part.
	AN6-12	3	D	Replace worn part.
13	Bushing - NAS72-6-005	3	D	Replace worn part.
14	Inboard Track Attach			
	Fitting - 2625023-7, -9, -11, -15, -17, -21	4	D	Replace worn part.
	2492007-1	5	D	Replace worn part.
	2625023-8, -10, -12, -16, -18, -22	4	D	Replace worn part.
	2492007-2	5	D	Replace worn part.

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 14)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
15	Support -			
	Inner (LH) 2322512-6, -17, -19, -51	1	E, F	Replace worn part.
	Inner (RH) 2322512-5, -16, -30, -52	1	E, F	Replace worn part.
	Outer (LH) 2322512-4, -15, -27, -49	1	E, F	Replace worn part.
	Outer (RH) 2322512-3, -14, -28, -50	1	E, F	Replace worn part.
16	Cap - 2322512-9, -31, -32	1	E	Replace worn part.
17	Cap - 2322512-8	1	F	Replace worn part.
18	Cam Follower -			
	CF-7/8-S-CP	1	E, F	Replace worn part
	(Alt. CRS-14CP)			
	(Alt. CTA-27X-41)			
	(Alt. CR-7/8-27X-41)			
	(Alt. CR-7/8-X-41)			
19	Button - 2322513-2	1	–	If spanwise movement (end play) of flap exceeds 0.34 inch maximum, replace buttons on cam followers (18).
	(Alt. 2322513-1)			
20	Nose Track - 2322512-7, -13, -37	1	G	Replace worn part.
21	Bushing - NAS76A4-21	1	G	Replace worn part.
22	Roller - 2325000-3	1	G	Replace worn part.
23	Bolt - NAS334CP12-5	2	G	Replace worn part.
	NAS334CP13	3	G	Replace worn part.
24	Track Assy. - 2325022-1, -10, -13, -15	1	H	Replace worn part.
25	Bearing - BSSR-5235	1	H	Replace worn part. Secure with Loctite.
	(Alt. MS21231-5)			
26	Bolt - AN5-11	2	H	Replace worn part.
	NAS464P5-17	3	H	Replace worn part.
27	Bushing - NAS72-5-005	3	H	Replace worn part.
28	Outboard Track Attach			
	Fitting - (LH) 2625024-3, -5, -7	1	H	Replace worn part.
	(RH) 2625024-4, -6, -8	1	H	Replace worn part.
29	Sector - 2625031-1, -2, -6	6	J, K, L	Replace worn part.
	2625031-9, -10	7	J, K, L	Replace worn part.
	2625031V1-1, -2	8	J, K, L	Replace worn part.
	2625031-13, -14	9	J, K, L	Replace worn part.
30	Bearing - AN200KP5	1	K	Replace worn part. Secure with Loctite.
	(Alt. MS27640-5)			
31	Spacer - MS43DD5-79	1	K	Replace worn part.

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 14)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
32	Bolt - NAS1305-42H NAS6605-44	10 11	K	Replace worn part.
33	Bearing - MS21233-5	1	L	Replace worn part. Secure with Loctite and stake.
34	Bolt - NAS464P5-10	1	L	Replace worn part.
35	Bolt - NAS464P6-28	1	J	Replace worn part.
36	Bolt - NAS464P4-11	1	M	Replace worn part.
37	Bracket Assy. - 2325079-3, -4, -11, -12, -17, -18	1	M	Replace worn part.
38	Bracket Assy. - 2425081-1, -11	1	N	Replace worn part.
39	Pulley - MS20221-A1	1	N	Replace worn part.
40	Bolt - NAS1305-19H	1	N	Replace worn part.
41	Bracket Assy. - 2325080-1, -11	1	P	Replace worn part.
42	Pulley - MS20221-A1	1	P	Replace worn part.
43	Bolt - NAS464P5-15	1	P	Replace worn part.
44	Bracket Assy. - 2625040-57 2625038-1, -2	12 13	Q Q	Replace worn part. Replace worn part.
45	Pulley - MS20221-A1	14	Q	Replace worn part.
46	Screw - NAS335CP20	14	Q	Replace worn part.
47	Bracket - 2325080-19	14	R	Replace worn part.
48	Pulley - MS20221-A1	14	R	Replace worn part.
49	Bolt - NAS464P5-12	14	S	Replace worn part.
50	Bracket - 2325080-44 (Alt. 2325080-44)	14	S	Replace worn part.
51	Plate - 2325080-21	14	S	Replace worn part.
52	Pulley - MS20221-A1	14	S	Replace worn part.
53	Bolt - NAS464P5-17	14	S	Replace worn part.
54	Bracket - 2815082-4, -6	15	V	Replace worn part.
55	Pulley - 2815086-1	15	T	Replace worn part.
56	Bearing - PD5K-FS464	15	T, V	Replace worn part.
57	Bolt - NAS464P5-24	15	T	Replace worn part.
58	Bracket - 2825082-1, -3	15	W	Replace worn part.
59	Pulley - MS20221-A1	15	U	Replace worn part.
60	Bolt - NAS464P5-24	15	U	Replace worn part.
61	Bracket - 2825083-7	15	X	Replace worn part.
62	Bolt - NAS464P5-13	15	U	Replace worn part.

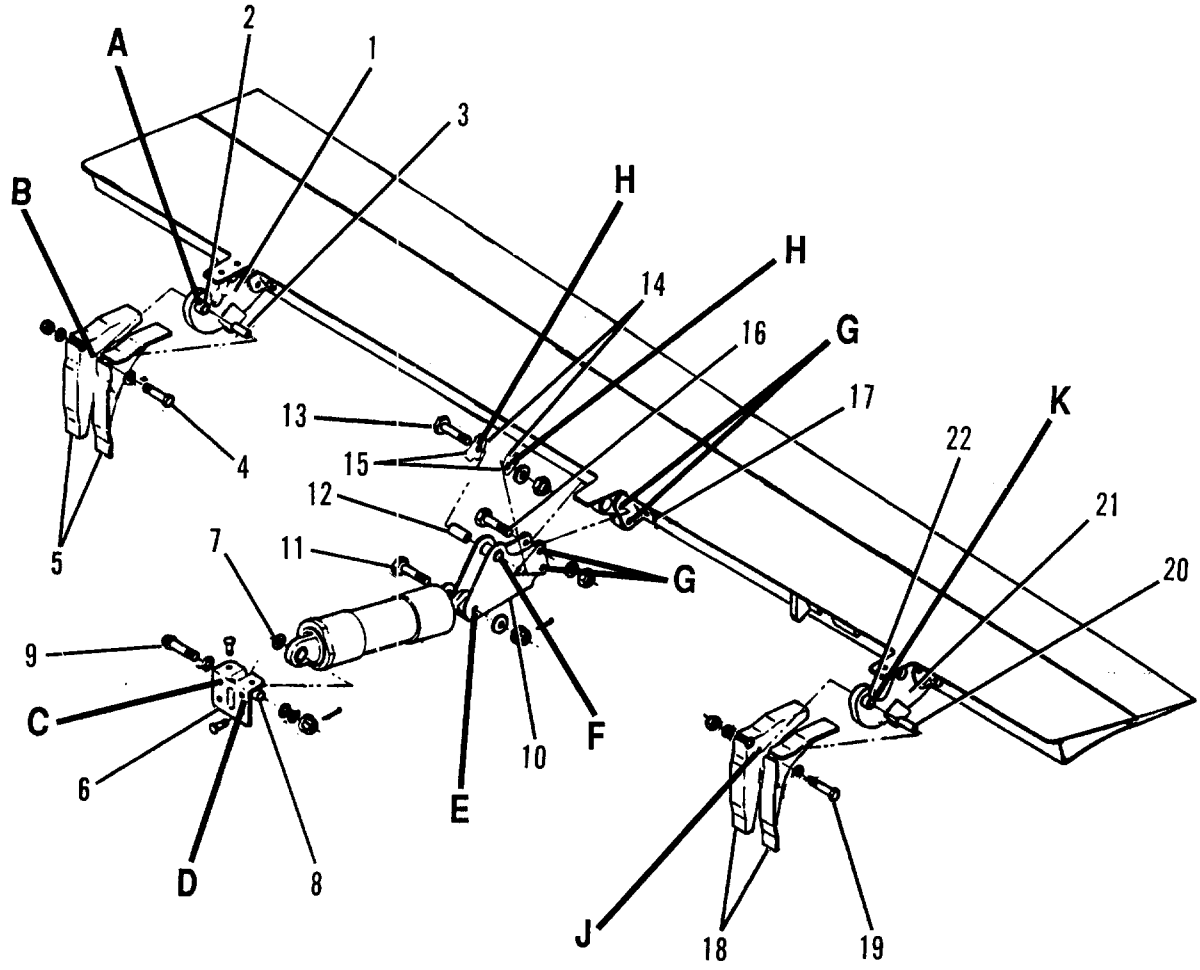
Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 14)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-003 thru 23-099 Except When Modified by SSK 934 "Replacement of Wing Flap Assembly"; 24-110 thru 24-327 Except When Modified by SSK 934 "Replacement of Wing Flap Assembly"; 25-001 thru 25-204 Except 25-135 and 25-188 and Except When Modified by SSK 934 "Replacement of Wing Flap Assembly"; 35-001 thru 35-059 Except When Modified by SSK 934 "Replacement of Wing Flap Assembly"; 36-001 thru 36-017 Except When Modified by SSK 934 "Replacement of Wing Flap Assembly"
3	23-003 thru 23-099 When Modified by SSK 934 "Replacement of Wing Flap Assembly"; 24-328 and Subsequent and Prior Aircraft Modified by a SSK 934 "Replacement of Wing Flap Assembly"; 25-205 and Subsequent and Prior Aircraft Modified by SSK 934 "Replacement of Wing Flap Assembly"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-060 and Subsequent and Prior Aircraft Modified by SSK 934 "Replacement of Wing Flap Assembly"; 36-018 and Subsequent and Prior Aircraft Modified by SSK 934 "Replacement of Wing Flap Assembly"
4	31-001 thru 31-049; 35-001 thru 35-673; 36-001 and Subsequent; Except Aircraft With 2625023-9 or 2492007-1 Inboard Track Attach Fitting Installed
5	31-050 and Subsequent; 35-674 and Subsequent; Except Aircraft With 2625023-9 or 2492007-1 Inboard Track Attach Fitting Installed
6	23-001 thru 23-099; 24-100 and Subsequent; 25-001 thru 25-373; 28-001 thru 28-005; 29-001 thru 29-004; 35-001 thru 35-055; 36-001 thru 36-605, Except 36-060 and 36-061
7	25-374 and Subsequent; 28-006 and Subsequent; 29-005 and Subsequent; 31-001 thru 31-032; 35-056 and Subsequent; 36-606 thru 36-664
8	31-033 thru 31-047; 35-665 thru 35-672
9	31-033 and Subsequent Except When 2625031V1-1 or 2625031V1-2 Sector Is Installed; 35-673 and Subsequent Except When 2625031V1-1 or 2625031V1-2 Sector Is Installed; 36-060, 36-061 and 36-665 and Subsequent Except When 2625031V1-1 or 2625031V1-2 Sector Is Installed
10	23-011, 23-012, 23-015, 23-019, 23-031, 23-039, 23-050a and Aircraft Modified Per ECR 392; 23-090 and Subsequent Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 24-100 and Subsequent Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 25-001 and Subsequent Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 28-001 and Subsequent Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 29-001 and Subsequent Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 31-001 thru 31-129 Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 35-001 thru 35-676 Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 36-001 thru 36-063 Except When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 14)

CODES	EFFECTIVITIES
11	23-090 and Subsequent When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 24-100 and Subsequent When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 25-001 and Subsequent When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 28-001 and Subsequent When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 29-001 and Subsequent When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 31-130 and Subsequent and Prior Aircraft When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 35-677 and Subsequent and Prior Aircraft When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"; 36-064 and Subsequent and Prior Aircraft When Modified by SB 23/24/25/25-57-1, "Replacement of Spoiler Actuator and Flap Sector Support Brackets"
12	24-329 thru 24-348; 25-206 thru 25-224; 35-067 thru 35-115; 36-018 thru 36-032
13	24-349 and Subsequent, 25-225 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-116 and Subsequent; 36-033 and Subsequent
14	23-001 thru 23-099; 24-100 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
15	25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent

Flap Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 14 of 14)



Spoiler Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
1	Hinge Arm, Inboard - 2322510-2 thru -144	1	A	0.5620	–	+0.0050/ -0.0010	–	–	–
2	Sleeve - 2322510-65	1	A	0.4410	0.5600	+0.0030/ -0.0000	±0.0010	–	–
3	Bearing - PB-814-14	1	A	0.2520	0.4400	+0.0000/ -0.0010	+0.0000/ -0.0010	–	–
4	Bolt - AN4-13A, -14A	1	A	–	0.2490	–	+0.0000/ -0.0030	–	–
5	Hinge Bracket - 2322514-5, -11, -6, -12	1	B	0.250	–	+0.0050/ -0.0010	–	–	–
6	Fitting - 2422513-1(Hole C Inbd side, Hole D Outbd side)	1	C	0.4375	–	+0.0000/ -0.0010	–	–	–
			D	0.3755	–	+0.0000/ -0.0005	–	–	–
7	Bushing - NAS77-4-06	1	C	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
8	Bushing - NAS72-4-002	1	D	0.2500	0.4355	+0.0010/ -0.0005	+0.0000/ -0.0010	–	–
9	Bolt - BACB30NJ4D10 BACB30NJ4D12	1		–	0.2495	–	+0.0000/ -0.0010	–	–
10	Arm Assy - 2422511-8, -13	2	E	0.2492	–	+0.0010/ -0.0000	–	–	–
			F	0.4410	–	+0.0030/ -0.0000	–	–	–
			G	0.2500	–	+0.0020/ -0.0010	–	–	–
	2422511-18, -31, -32	3	E	0.2492	–	+0.0010/ -0.0000	–	–	–
			F	0.4410	–	+0.0030/ -0.0000	–	–	–
			G	0.3120	–	+0.0020/ -0.0000	–	–	–
11	Bolt - NAS464P4-13 NAS464P4A11	1	E	–	0.2492	–	+0.0000/ -0.0009	–	–
12	Bearing - PB1014-14 (Alt. AA401-12)	1	F	0.3145	0.4400	+0.0000/ -0.0010	–	–	–
13	Bolt - NAS464P5-20 NAS464P5-17	1	F	–	0.3117	–	+0.0000/ -0.0009	–	–
14	Hinge Bracket - 2422514-1, -2 thru -43, -44	2	H	0.3120		+0.0060 -0.0000			
	2422514-57, -58, -60, -61	3	H	0.3756	–	+0.0015 -0.0000			

Spoiler Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
15	Bushing - 2422514-63	3	H	0.3120	0.3761	+0.0060/ -0.0010	+0.0000/ -0.0005	–	–
16	Bolt - NAS464P5A14	3	G	–	0.3117	–	+0.0000/ -0.0009	–	–
	NAS464P4A13	2	G	–	0.2492	–	+0.0000/ -0.0009	–	–
17	Hinge Arm - 2422541-2	3	G	0.3120	–	+0.0020/ -0.0000	–	–	–
	2422541-1	2	G	0.2500	–	+0.0020/ -0.0010	–	–	–
	Angle - 2322510-29, -30	1	G	0.3120	–	+0.0020/ -0.0000	–	–	–
18	Hinge Bracket - 2322514-7, 8	1	J	0.2500	–	+0.0050/ -0.0010	–	–	–
19	Bolt - AN4-14A	1	J	–	0.2490	–	+0.0000/ -0.0030	–	–
20	Bearing - PB-814-14	1	J	0.2520	0.4400	+0.0000/ -0.0010	+0.0000/ -0.0010	–	–
21	Hinge Arm - 2322510-143	1	K	0.5620	–	+0.0050/ -0.0010	–	–	–
22	Sleeve - 2322510-65	1	K	0.4410	0.5600	+0.0030/ -0.0000	±0.0010	–	–

Spoiler Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 5)

REPAIR DATA

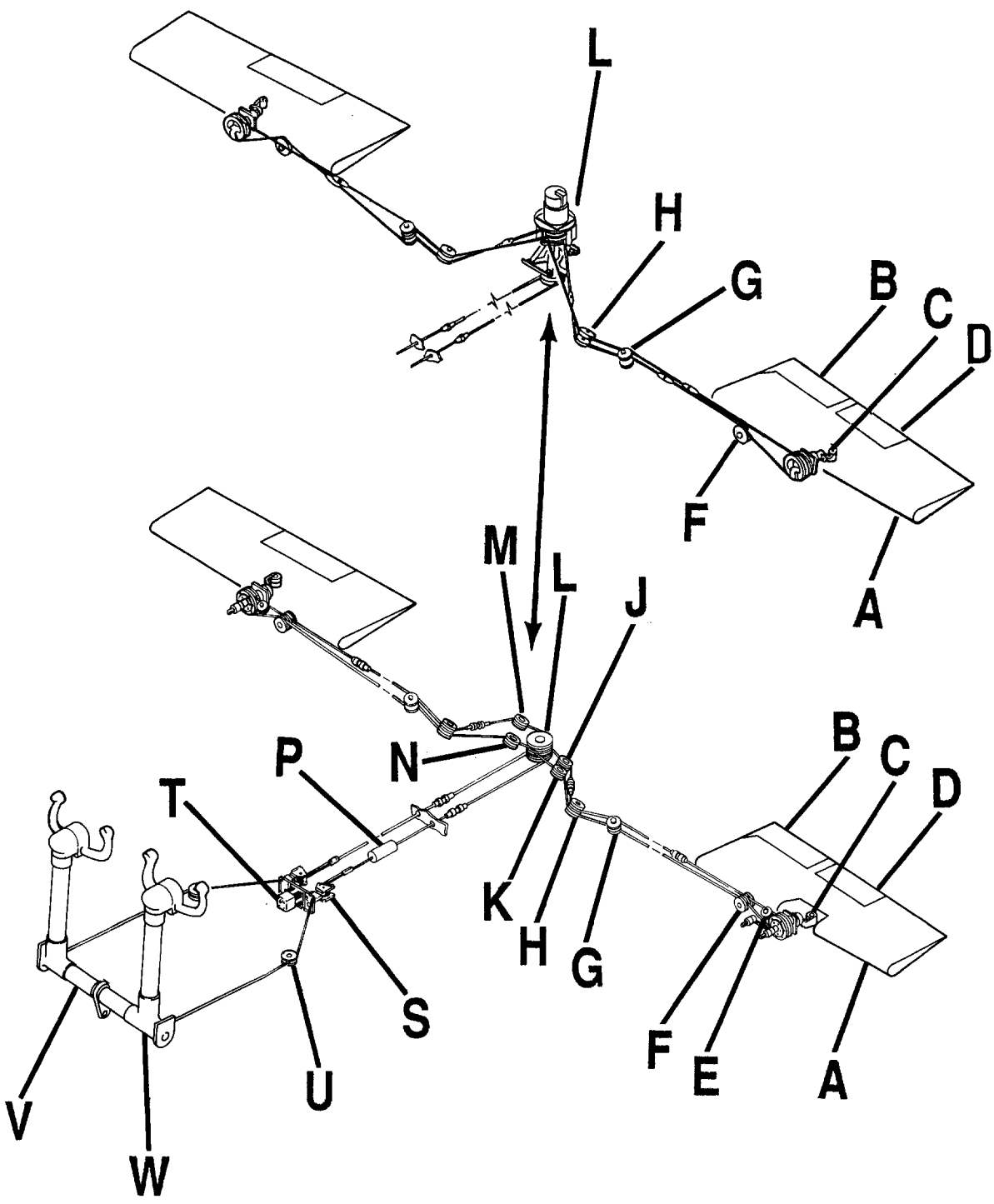
ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Hinge Arm, Inboard - 2322510-2 thru -144	1	A	Replace worn part.
2	Sleeve - 2322510-65	1	A	Replace worn part. Install new sleeve with Loctite.
3	Bearing - PB-814-14	1	A	Replace worn part.
4	Bolt - AN4-14A	1	A	Replace worn part.
5	Hinge Bracket - 2322514-5,11, -6, -12	1	B	Replace worn part.
6	Fitting - 2422513-1	1	C	Replace worn part.
7	Bushing - NAS77-4-06	1	C	Replace worn part. Install new bushing with wet primer. No substitution of parts.
8	Bushing - NAS72-4-002	1	D	Replace worn part. Install new bushing with wet primer. No substitution of parts.
9	Bolt - BACB30NJ4D10 BACB30NJ4D12	1	C,D	Replace worn part. No substitution of parts.
10	Arm Assy. - 2422511-8, -13	2	E, F, G	Replace worn part.
	2422511-18 thru -31, -32	3	E, F, G	Replace worn part.
11	Bolt - NAS464P4-13, NAS464P4A11	1	E	Replace worn part.
12	Bearing - PB1014-14 (Alt. AA401-12)	1	F	Replace worn part. Install new bearing with Loctite.
13	Bolt - NAS464P5-20, NAS464P5-17	1	F	Replace worn part.
14	Hinge, Bracket - 2422514-1 thru -44	2	H	Replace worn part.
	2422514-57, -58, -60, -61	3	H	Replace worn part.
15	Bushing - 2422514-63	3	H	Replace worn part. Install new bushing with wet primer.
16	Bolt - NAS464P5A14, NAS464P5A13	1	G	Replace worn part.
17	Hinge Arm - 2422541-1	2	G	Replace worn part.
	2422541-2	3	G	Replace worn part.
	Angle - 2322510-29, -30	1	G	Replace worn part. Ream hole G in angle (17) to 0.312 (+0.002/-0.000) after installation.
18	Hinge Bracket - 2322514-7, -8	1	J	Replace worn part.
19	Bolt - AN4-14A	1	J	Replace worn part.
20	Bearing - PB-814-14	1	J	Replace worn part.
21	Hinge Arm - 2322510-143	1	K	Replace worn part.
22	Sleeve - 2322510-65	1	K	Replace worn part. Install new sleeve with Loctite.

Spoiler Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 thru 24-302, 24-309 thru 24-317; 25-001 thru 25-194; 35-001 thru 35-032; 36-001 thru 36-013
3	24-303 thru 24-308, 24-318 and Subsequent; 25-195 and Subsequent; 31-001 and Subsequent; 35-033 and Subsequent; 36-014 and Subsequent

Spoiler Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 5)

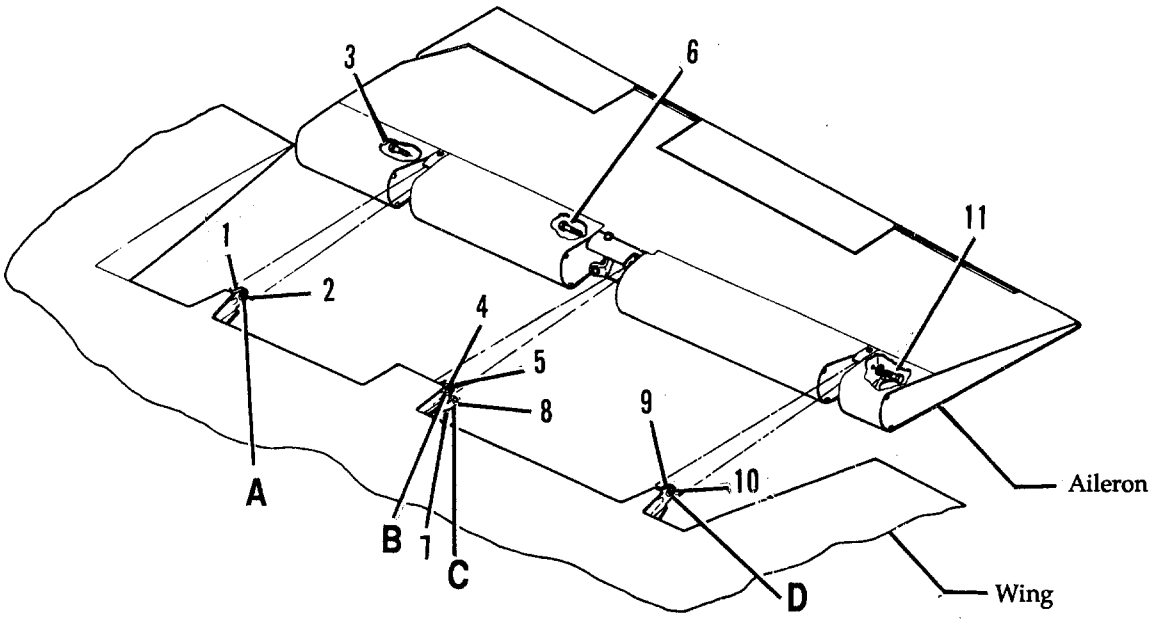
AILERON SYSTEM FITTINGS - ALLOWABLE WEAR AND REPAIR DATA



(TYPICAL)

8-13B-2

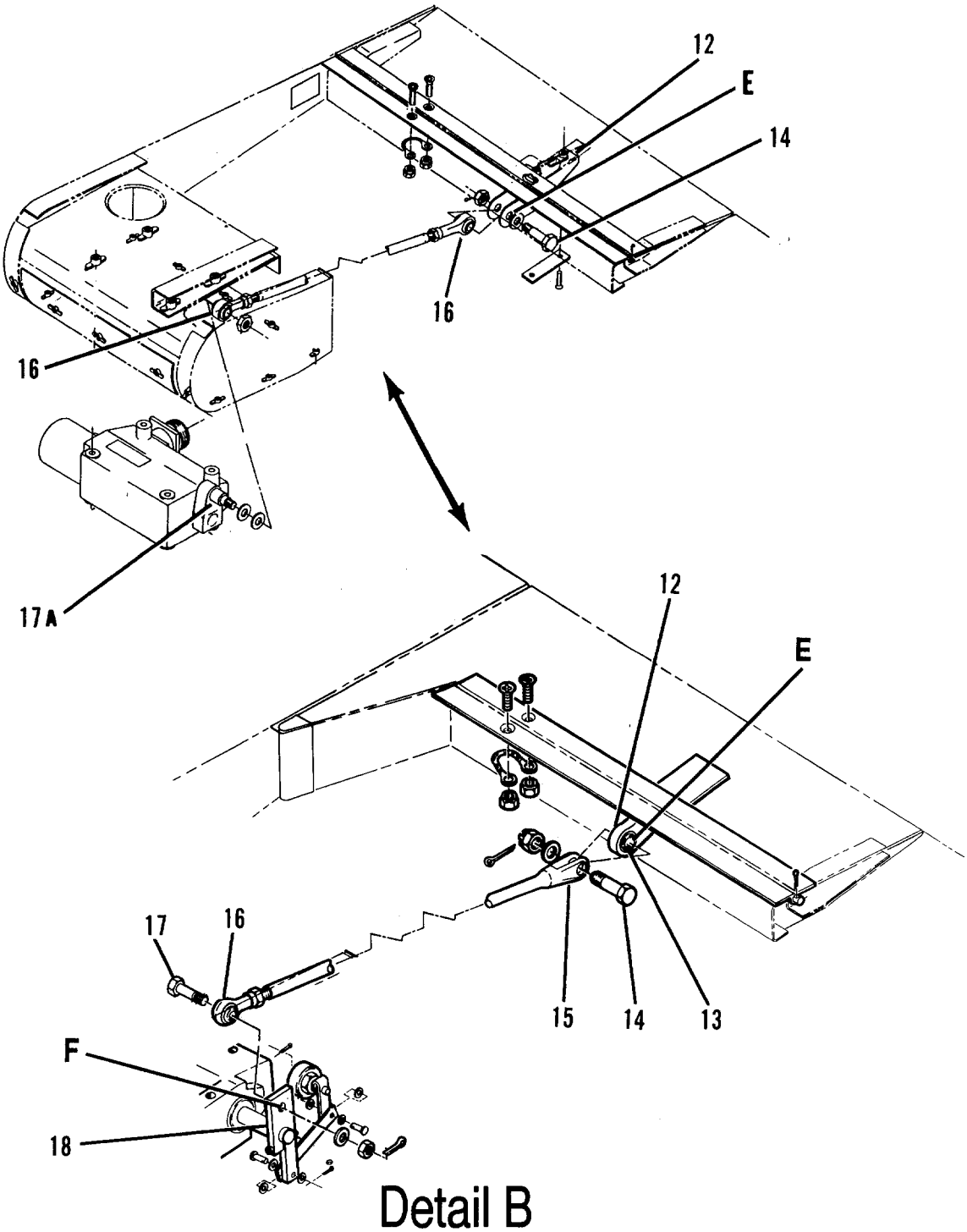
Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 28)



Detail A

(TYPICAL)

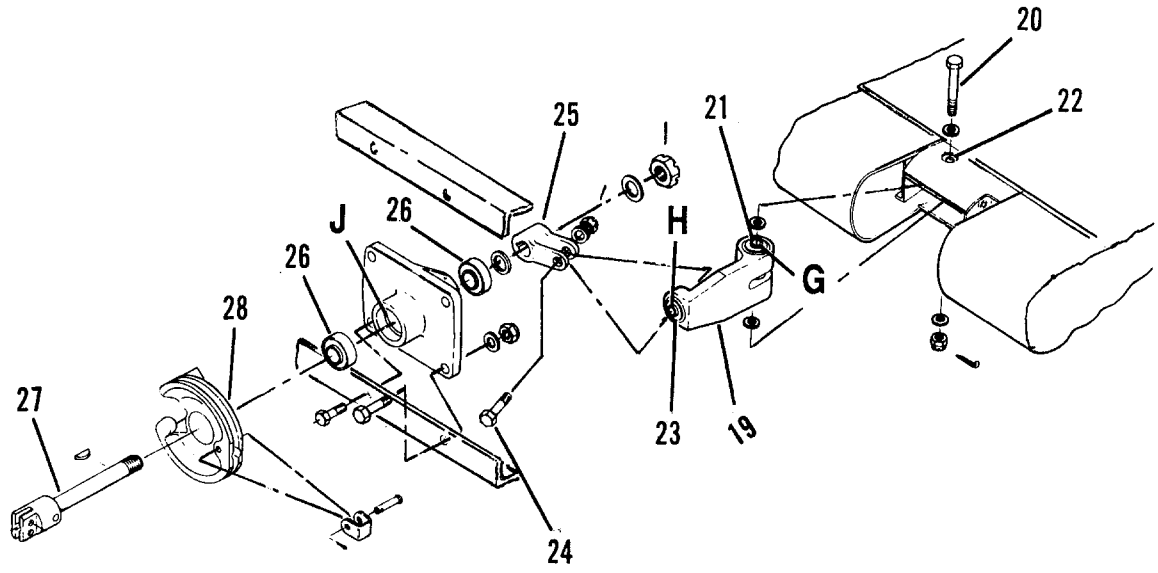
Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 28)



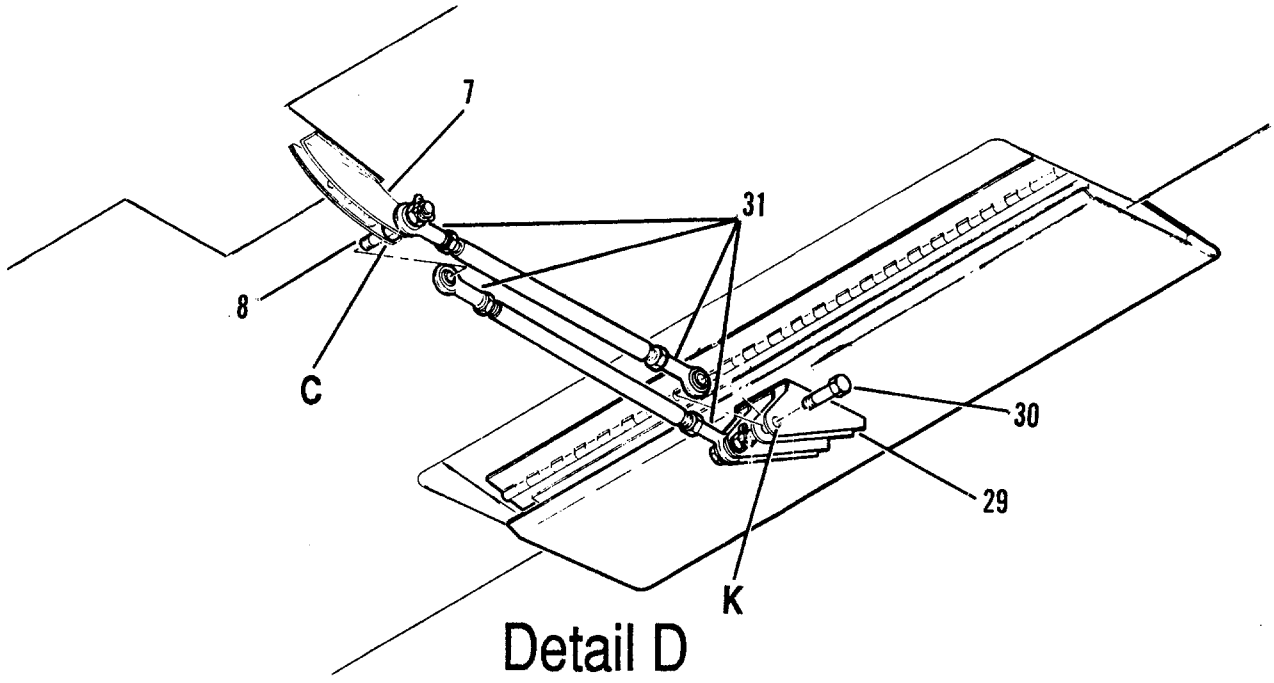
Detail B

8-6B
4-4C-2

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 28)



Detail C

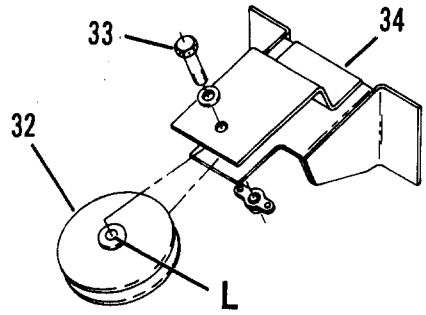


Detail D

(TYPICAL)

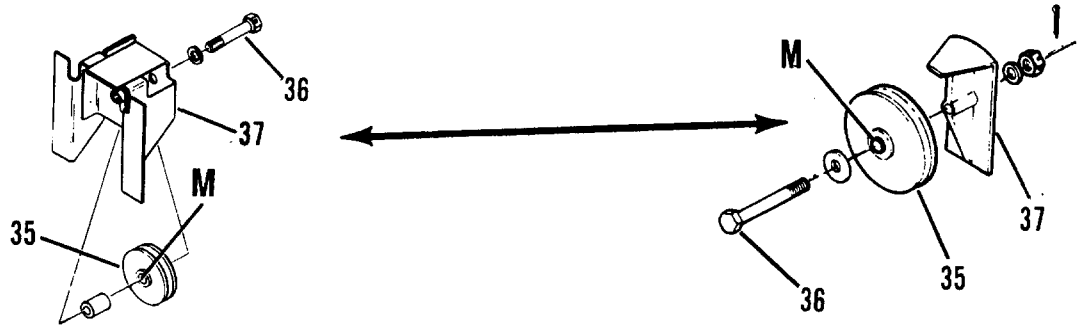
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B4-6A
C4-5B-1

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 28)

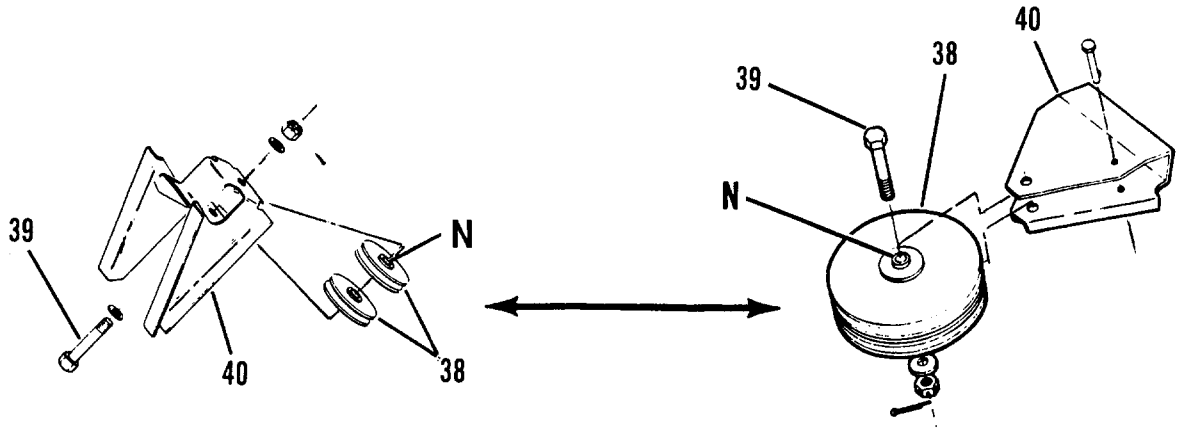


(All Except Model 31 Series Aircraft)

Detail E

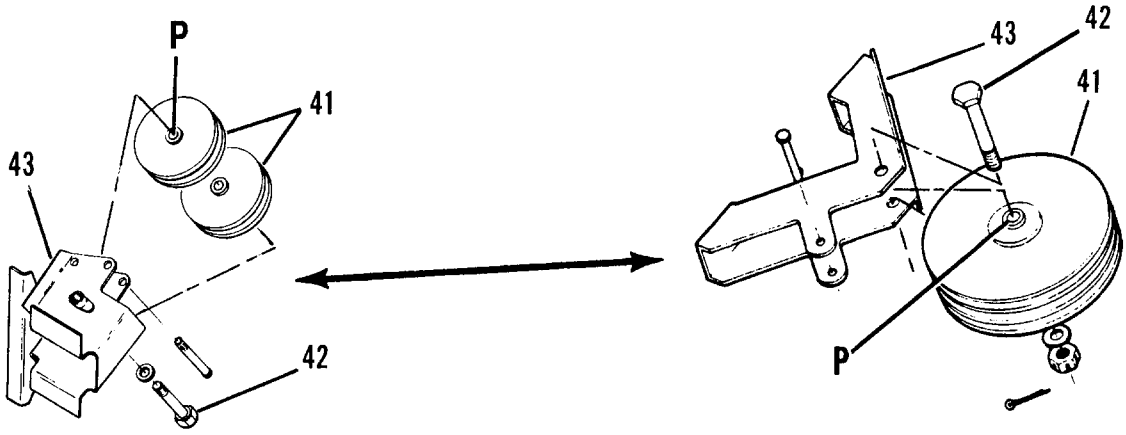


Detail F

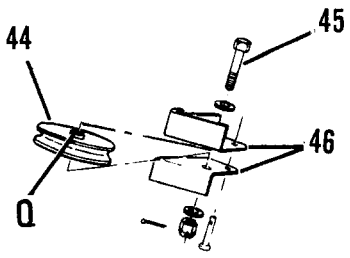


Detail G

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 28)

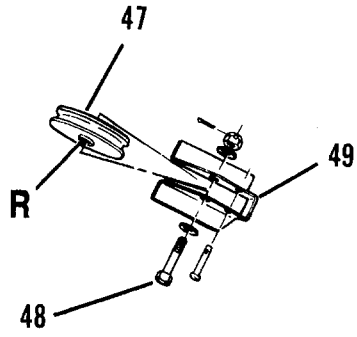


Detail H



(All Except Model 31 Series Aircraft)

Detail J

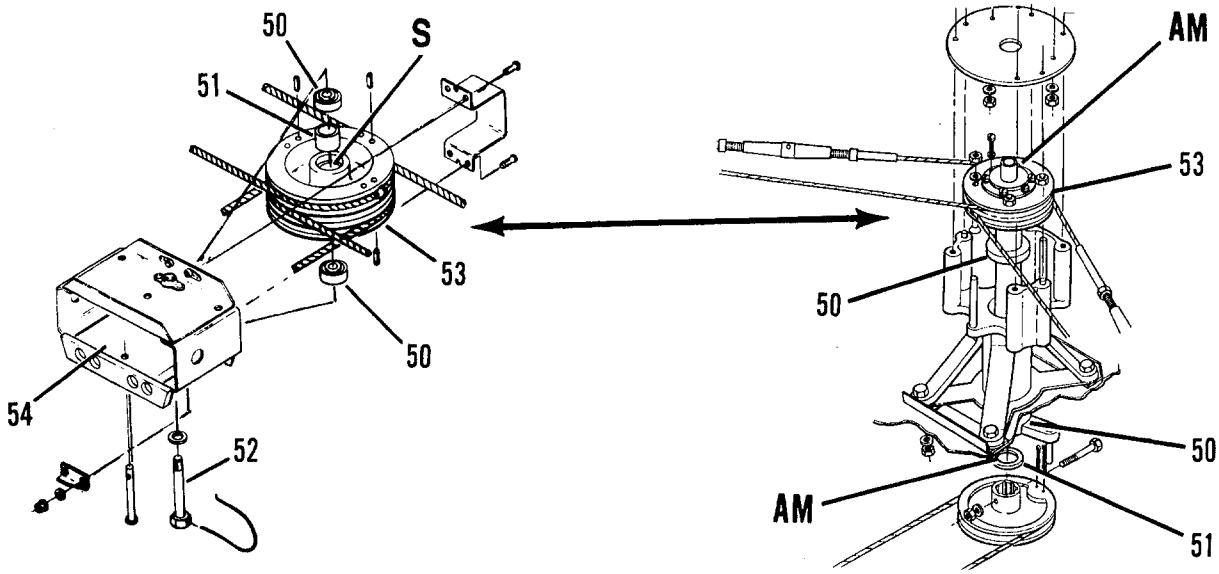


(All Except Model 31 Series Aircraft)

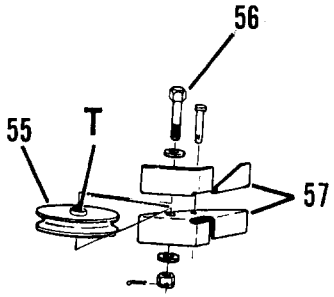
Detail K

(TYPICAL)

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 28)

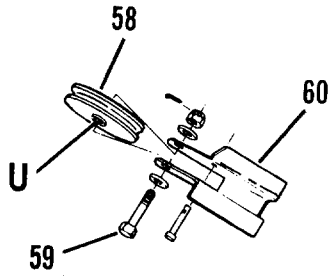


Detail L



(All Except Model 31 Series Aircraft)

Detail M



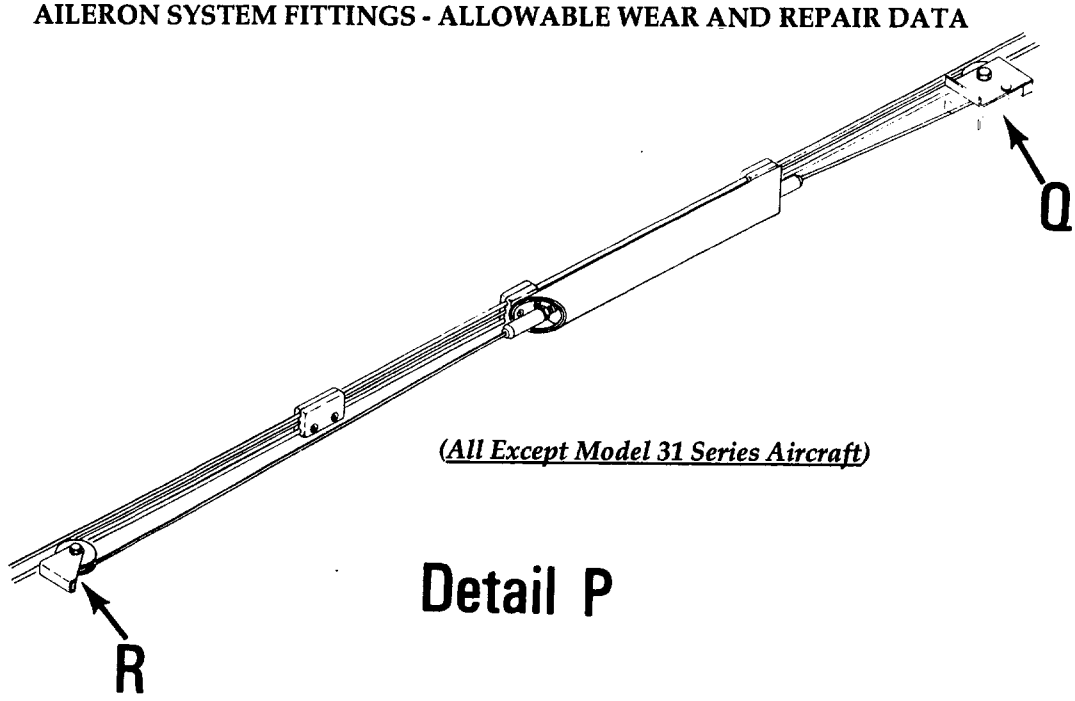
(All Except Model 31 Series Aircraft)

Detail N

(TYPICAL)

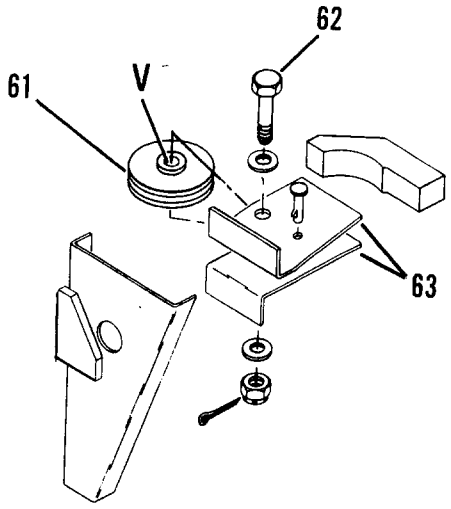
Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 28)

AILERON SYSTEM FITTINGS - ALLOWABLE WEAR AND REPAIR DATA



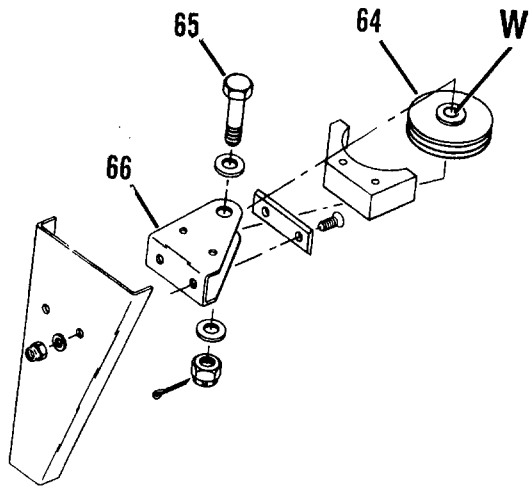
(All Except Model 31 Series Aircraft)

Detail P



(All Except Model 31 Series Aircraft)

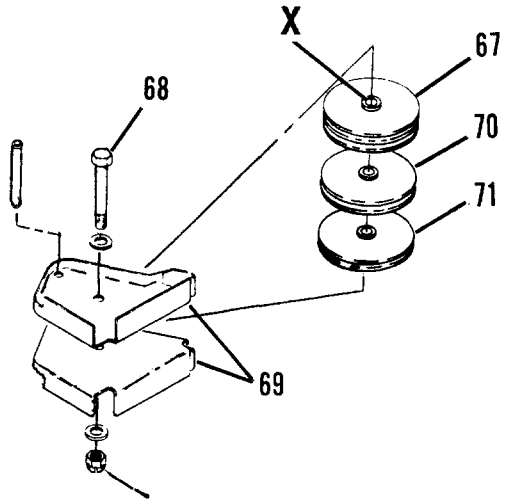
Detail Q



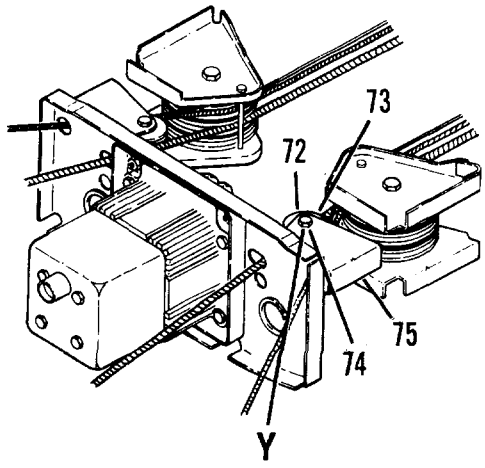
Detail R

(TYPICAL)

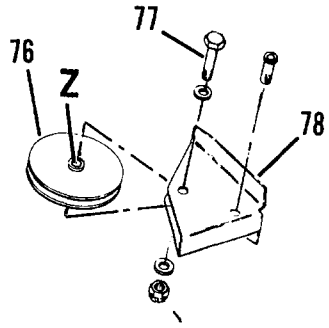
Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 28)



Detail S



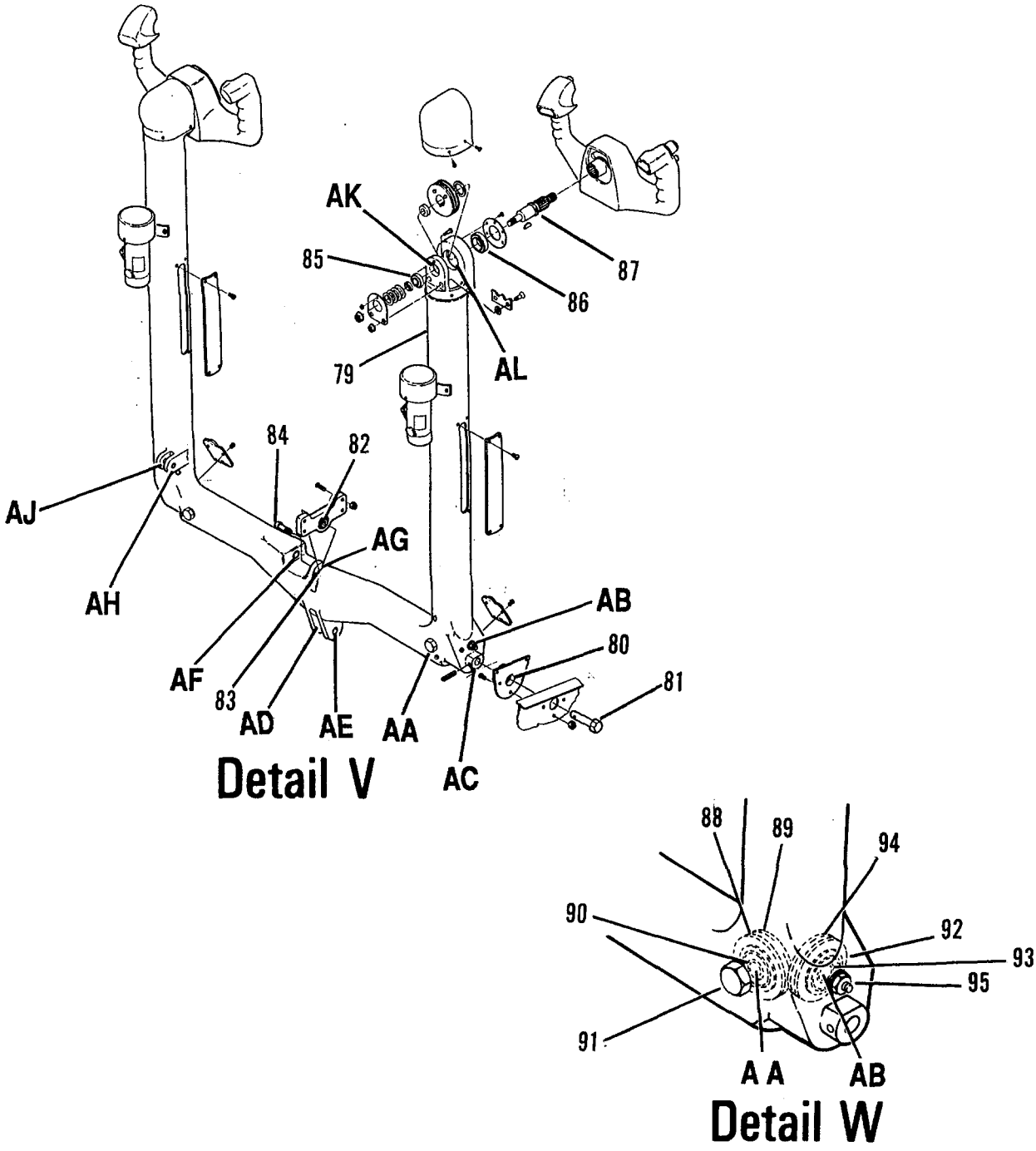
Detail T



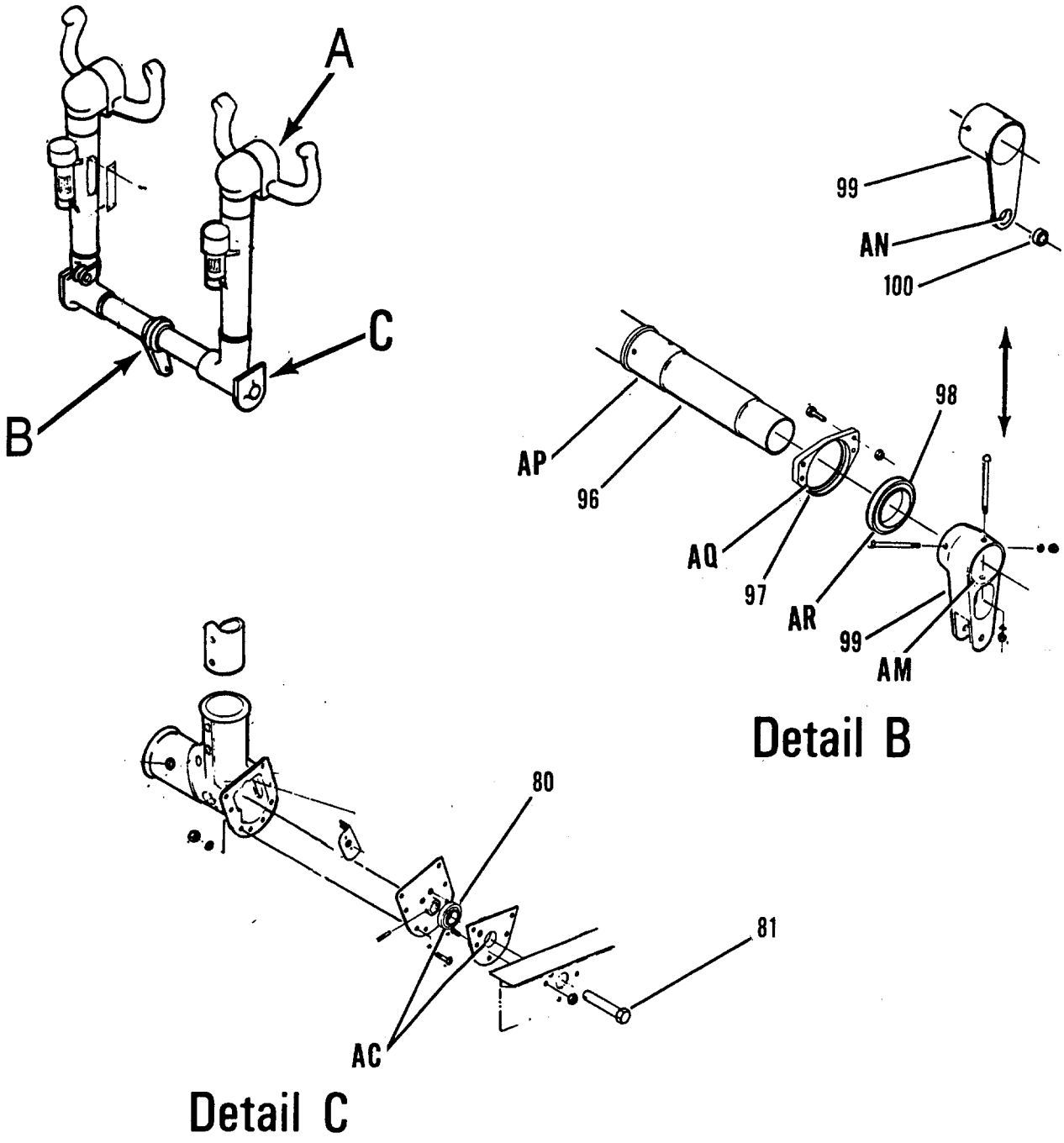
Detail U

(TYPICAL)

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 28)



Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 28)



Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Inboard Hinge Bracket - 2322530-3, -39, -40, -55, -56, -59, -60, -67, -68, -81, -82	2	A	0.9005	–	+0.0005/ -0.0000	–	–	–
2	Bearing - BP-4	2	A	0.9014	–	+0.0000 -0.0005	–	–	–
	KSP-4	4	A	0.9014	–	+0.0000 -0.0005	–	–	–
	MS27645-4	3	A	0.9014	–	+0.0000 -0.0005	–	–	–
3	Bolt - AN4H11A	5	A	–	0.2460	–	+0.0030/ -0.0000	–	–
	AN4H12A	6	A	–	0.2460	–	+0.0030/ -0.0000	–	–
4	Middle Hinge Bracket - 2322530-19, -20, 27, -28, -51, -52, -89, -90	1	B	0.9005	–	+0.0005/ -0.0000	–	–	–
5	Bearing - MS27645-4	1	B					–	–
6	Bolt - AN4H13A	1	B	–	0.2460	–	+0.0030/ -0.0000	–	–
7	Angle and Plate - 2322530-29, -30, -31, -32	1	C	0.2492	–	+0.0010/ -0.0000	–	–	–
8	Stud - 2322530-33, -53	1	E	–	0.2492	–	+0.0000/ -0.0009	–	–
9	Outboard Hinge Bracket - 2322530-41, -42, -63, -64, -75, -76, -79, -80	1	D	0.9005	–	+0.0005/ -0.0000	–	–	–
10	Bearing - MS27645-4	1	D						
11	Bolt - AN4H11A	5	D	–	0.2460	–	+0.0030/ -0.0000	–	–
	AN4H12A	6	D	–	0.2460	–	+0.0030/ -0.0000	–	–
12	Horn - 2324011-28	7	E	0.6560	–	+0.0020/ -0.0000	–	–	–
	2324011-235	8	E	0.6560	–	+0.0020/ -0.0000	–	–	–
13	Bearing - ABT4-105	8	E	–	–	–	–	–	–

Aileron System Fittings – Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
14	Bolt - AN4-7	7	E	–	0.2490	–	+0.0010/ -0.0000	–	–
	NAS464P4-8	8	E	–	0.2483	–	+0.0009/ -0.0000	–	–
15	Clevis Rod End - 2433003-2	9	E	0.2492	–	+0.0010/ -0.0000	–	–	–
	2333001-7	10	E	0.2492	–	+0.0010/ -0.0000	–	–	–
16	Bearing Rod End - HFV-4	1	F					–	–
	(Alt. TR-4)		F					–	–
	(Alt. REF-4)		F					–	–
17	Bolt - AN4-11	1	F	–	0.2460	–	+0.0030/ -0.0000	–	–
17A	Actuator - 2380027-10	11	F	0.2500	–	+0.0050/ -0.0010	–	–	–
18	Actuator Arm - 2333008-3	12	F	0.2500	–	+0.0050/ -0.0010	–	–	–
	2333008-6	13	F	0.2500	–	+0.0050/ -0.0010	–	–	–
19	Yoke - 2324518-1	14	G, H	0.9015	–	±0.0010	–	–	–
	2324511-5	15	G, H	0.9015	–	±0.0010	–	–	–
20	Bolt - NAS464P3-33	14	G	–	0.2485	–	+0.0010/ -0.0000	–	–
	NAS1304-34H NAS1104-38D	15	G	–	0.2485	–	+0.0010/ -0.0000	–	–
21	Bearing - MS27644-4 (Alt. DDP4) (Alt. BP4) (Alt. BR4)	1	G	0.2500	0.9014	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
22	Bushing - NAS75-4-009 NAS75-4-008	1	G	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
23	Bearing - BP-4 (Alt. MS27645-4) (Alt. KSP4)	1	H	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
24	Bolt - NAS464P4-12	1	H	0.2492	–	+0.0000/ -0.0009	–	–	–

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
25	Aileron Drive Clevis -								
	2324512-3, -5	16	H	0.2492	–	+0.0010/ -0.0000	–	–	–
			J	0.4991	–	+0.0005/	–	–	–
	2324517-1, -3	17	H	0.2492	–	+0.0010/ -0.0000	–	–	–
			J	0.4991	–	+0.0005/ -0.0000	–	–	–
26	Bearing - AN201KP8A	1	J	0.5000	1.1250	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
27	Pulley Shaft -								
	2324513-3, -13	1	J	–	0.4986	–	+0.0005/ -0.0000	–	–
		K	–	0.9986	–	+0.0005/ -0.0000	–	–	
28	Pulley -								
	2324513-9, -10	1	K	0.9985	–	+0.0000/ -0.0009	–	–	–
	2324513-15, -16								
29	Arm Link -								
	2324011-111, -223	1	H	0.2500	–	+0.0050/ -0.0010	–	–	–
30	Bolt - AN4-7	18	H	–	0.2490	–	+0.0000/ -0.0030	–	–
	NAS464P4-8	19	H	–	0.2492	–	+0.0000/ -0.0009	–	–
31	Bearing Rod End - HFV-4	1	H, C	–				–	–
	(Alt. TR-4)		H, C						
	(Alt. REF -4T)		H, C						
	(Alt. HFR -4M)		H, C						
32	Pulley - MS24566-3B	1	L	0.2500	2.0000	+0.0000/ -0.0005	+0.0000/ -0.0100	–	–
33	Bolt - AN4H10A	1	L	–	0.2460	–	+0.0030/ -0.0000	–	–
34	Bracket - 2424034-1	1	L	0.2500	–	±0.0100	–	–	–
35	Pulley - MS20220A1	1	M	0.3125	1.7500	+0.0005/ -0.0000	±0.0050	–	–
36	Bolt - AN5H16A	1	M	–	0.3090	–	+0.0030/ -0.0000	–	–

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 14 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
37	Bracket -								
	2324505-29, -30, -39, -40	20	M	0.3120	–	±0.0100	–	–	–
	2324505-67, -68		M	0.3120	–	±0.0100	–	–	–
	5425013-4, -5	21	M	0.3120	–	±0.0100	–	–	–
38	Pulley - MS20220A1	1	N	0.3125	1.7500	+0.0005/ -0.0000	±0.0050	–	–
39	Bolt - AN5-17	1	N	–	0.3090	–	+0.0030/ -0.0000	–	–
40	Bracket - 2324505-6	20	N	0.3120	–	±0.0100	–	–	–
	5425014-4, -5	21	N	0.3120	–	±0.0100	–	–	–
41	Pulley - MS20221A1	1	P	0.3125	2.6250	+0.0000/ -0.0005	±0.0050	–	–
42	Bolt - AN5H16A	1	P	–	0.3090	–	+0.0030/ -0.0000	–	–
43	Bracket - 2324505-23	20	P		–		–	–	–
	5425010-1	21	P		–		–	–	–
44	Pulley - MS20221A1	20	Q	0.3125	2.6250	+0.0000/ -0.0005	±0.0050	–	–
45	Bolt - AN5-12	20	Q	–	0.3090	–	+0.0030/ -0.0000	–	–
46	Bracket -								
	Upper LH -								
	2315159-1, -5, -6	20	Q	0.3120	–	+0.0060/ -0.0010	–	–	–
	Lower LH -								
	2315159-2, -3	20	Q	0.3120	–	+0.0060/ -0.0010	–	–	–
47	Pulley - MS20221-1 (Alt. MS20221A1)	20	R	0.3125	2.6250	+0.0000/ -0.0005	±0.0050	–	–
48	Bolt - AN5-12	20	R	–	0.3090	–	+0.0030/ -0.0000	–	–
49	Bracket - 2315157-1, -2, -3, -4	20	R	0.3120	–	+0.0060/ -0.0010	–	–	–
50	Bearing - AN201KP-5-A	20	S					–	–
	Upper - MS27642-16	21	AM	1.0000	1.7500	+0.0000/ -0.0005	+0.0000/ -0.0010	–	–
	Lower - MS27648-16	21	AM	1.0000	1.9375	+0.0000 -0.0010	+0.0000 -0.0010	–	–
51	Spacer - 2315125-5	20	S	0.3350	0.4380	±0.0150	±0.0100	–	–
	5415136-19	21	AM	1.000	–	+0.0100/ -0.0000	–	–	–

Aileron System Fittings - Allowable Wear and Repair Data
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WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
52	Bolt - AN5H22A	20	S	–	0.3090	–	+0.0030/ -0.0000	–	–
53	Sector - 2315125-6	22	S	0.8118	3.8800	+0.0000/ -0.0005	±0.0030	–	–
	2315124V1-2	23	S	0.8118	3.8800	+0.0000/ -0.0005	±0.0030	–	–
	2315125-7	24	S	0.8118	3.8800	+0.0000/ -0.0005	±0.0030	–	–
	5415125-3	25	AM	1.0060	–	+0.0000/ -0.0010	–	–	–
	3115102-1	26	AM	1.9000	–	–	–	–	–
54	Bracket - 2315158-1, -5, -9	20	S	0.3120	–	+0.0060/ -0.0010	–	–	–
55	Pulley - MS20221A1	20	T	0.3125	2.6250	+0.0000/ -0.0005	±0.0050	–	–
56	Bolt - AN5-12	20	T	–	0.3090	–	+0.0030/ -0.0000	–	–
57	Bracket - 2315159-1, -2, -3, -5, -6	20	T	0.3120	–	+0.0060/ -0.0010	–	–	–
58	Pulley - MS20221-1 (Alt. MS20221A1)	20	U	0.3125	2.6250	+0.0000/ -0.0005	±0.0050	–	–
59	Bolt - AN5-12	20	U	–	0.3090	–	+0.0030/ -0.0000	–	–
60	Bracket - 2315157-3, -4	20	U	0.3120	–	+0.0060/ -0.0010	–	–	–
61	Pulley - MS20219A1	20	V	0.2500	1.3120	+0.0000/ -0.0005	±0.0050	–	–
62	Bolt - AN4-10, -13	20	V	–	0.2460	–	+0.0030/ -0.0000	–	–
63	Bracket - 2315128-4, -5	20	V	0.2500	–	±0.0100	–	–	–
64	Pulley - MS20219A1	20	W	0.2500	1.3120	+0.0000/ -0.0005	±0.0050	–	–
65	Bolt - AN4-10	20	W	–	0.2460	–	+0.0030/ -0.0000	–	–
66	Bracket - 2315128-9	20	W	0.2500	–	±0.0100	–	–	–
67	Pulley - MS20220-2	28	X	0.3125	–	+0.0000/ -0.0005	–	–	–
	2615177-1	29	X	0.3125	–	+0.0000/ -0.0005	–	–	–
68	Bolt - AN5-24, -25	1	X	–	0.3090	–	+0.0030/ -0.0000	–	–

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 16 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
69	Bracket - 2315120-11, -12, -33, -34, -37, -39, -40, -41	1	X	0.3125	–	+0.0010/ -0.0000	–	–	–
70	Pulley [1]	1	X	[1]					
71	Pulley [2]	1	X	[2]					
72	Pulley - MS20219A1	1	Y	0.2500	1.3120	+0.0000/ -0.0005	±0.0050	–	–
73	Spacer - NAS43DD4-20	1	Y	0.2760	0.3750	+0.0210/ -0.0200	±0.0100	–	–
74	Bolt - AN4-13	1	Y	–	0.2460	–	+0.0030/ -0.0000	–	–
75	Bracket - 2615105-7, -8, -14, -15, -16, -17, -18	27	Y	0.2500	–	±0.0100	–	–	–
	2615105L96-1, -2	47	Y	0.2500	–	±0.0100	–	–	–
76	Pulley - MS20220-2	1	Z	0.3125	–	±0.0005	–	–	–
	(Alt. MS20220A2)		Z	0.3125	–	±0.0005	–	–	–
77	Bolt - AN5-12	1	Z	–	0.3090	–	+0.0030/ -0.0000	–	–
78	Bracket - 2315120-7, -8	3	Z	0.3120	–	±0.010	–	–	–
79	Yoke Assembly - 2415152-1 (Alt. 2415152-3, -5)	39	AA	0.4393	–	+0.0005/ -0.0007	–	–	–
			AB	0.4393	–	+0.0005/ -0.0007	–	–	–
			AC	0.4995	–	+0.0010 -0.0000	–	–	–
			AD	[2]					
			AE	[2]					
			AF	0.5000	–	±0.0100	–	–	–
			AG	0.3773	–	±0.0005	–	–	–
			AH	[2]					
			AJ	[2]					
			AK	0.8760	–	+0.0015/ -0.0000	–	–	–
			AL	1.1880	–	+0.0020/ -0.0000	–	–	–

Aileron System Fittings – Allowable Wear and Repair Data
Figure 1 (Sheet 17 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
	2615270-1	40	AA	0.4393	–	+0.0005/ -0.0007	–	–	–
			AB	0.4393	–	+0.0005/ -0.0007	–	–	–
			AC	0.4995	–	+0.0010 -0.0000	–	–	–
			AD	[2]					
			AE	[2]					
			AF	0.5000	–	±0.0100	–	–	–
			AG	0.3773	–	±0.0005	–	–	–
			AH	[2]					
			AJ	[2]					
			AK	0.8760	–	+0.0015/ -0.0000	–	–	–
			AL	1.1880	–	+0.0020/ -0.0000	–	–	–
80	Bearing - MS27641KP8A (Alt. AN201KP8A)	1	AC	0.5000	1.1250	+0.0000/ -0.0005	+0.0000/ -0.0005		
81	Pin - 2315152-33 (Alt. 2315152-9)	1	AC	–	0.4986	–	+0.0005/ -0.0000	–	–
82	Bearing - MS20200KP4	33	AG	0.2500	0.9014	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
83	Bushing - NAS75-4-015	33	AG	0.2500	0.3761	+0.0015/ -0.0000	+0.0005/ -0.0000	–	–
84	Bolt - MS20004H15	33	AG	–	0.2477	–	+0.0015/ -0.0000	–	–
85	Bearing - MS27641KP6A (Alt. AN201KP6A)	1	AK	0.3750	0.8750	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
86	Bearing - B-539-ZZ (Alt. B-539-DD)	1	AL	0.7500	1.1850	+0.0007/ -0.0007	+0.0000/ -0.0010	–	–
87	Shaft - 2315153-28	30	AK	–	0.3740	–	+0.0003/ -0.0002	–	–
			AL	–	0.7490	–	+0.0000/ -0.0010	–	–
	2615153-5 (Alt. 2315153-49)	31	AK	–	0.3740	–	+0.0003/ -0.0002	–	–
			AL	–	0.7490	–	+0.0000/ -0.0010	–	–
	2315271-1	32	AK	–	0.3739	–	+0.0003/ -0.0002	–	–
			AL	–	0.7485	–	+0.0005/ -0.0005	–	–

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 18 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
88	Pulley - 2315152-21	1	AA	–	1.7550	–	±0.0100	–	–
89	Bushing - NAS75-5-010	44	AA	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS75-5-109	45	AA	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS75-5-114	46	AA	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
90	Bushing - NAS75-5-016	45	AA	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS77-5-34	46	AA	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
91	Bolt - NAS1305-15D	43	AA	–	0.3120	–	+0.0000/ -0.0010	–	–
	NAS464P5-15	44	AA	–	0.3117	–	+0.0000/ -0.0009	–	–
	NAS464P5-38	45	AA	–	0.3117	–	+0.0000/ -0.0009	–	–
	NAS464P5-41	46	AA	–	0.3117	–	+0.0000/ -0.0009	–	–
92	Pulley - 2315152-21	1	AB	–	1.7550	–	±0.0100	–	–
93	Bushing - NAS75-5-014	45	AB	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS77-5-24	46	AB	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
94	Bushing - NAS77-5-007	45	AB	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS77-5-013	46	AB	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
95	Bolt - NAS1305-15D	44	AB	–	0.3120	–	+0.0000/ -0.0010/	–	–
	NAS464P5-22	45	AB	–	0.3117	–	+0.0000/ -0.0009	–	–
	NAS464P5-23	46	AB	–	0.3117	–	+0.0000/ -0.0009	–	–
96	Torque Tube - 2315151-2	34	J	–	1.9050	–	+0.0000/ -0.0020	–	–
97	Block Assy., Bearing - 2315151-6	34	K	2.6250	–	+0.0010/ -0.0000	–	–	
98	Bearing - B-545-ZZ (Alt. B5-545-DD)	34	K, L	2.0610	2.6250	+0.0005/ -0.0005	-0.0010 -0.0000	–	–

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 19 of 28)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
99	Bellcrank - 2315151-4, -7	35	M	1.9050	–	+0.0000/ -0.0020	–	–	–
	2315154-1	36	M	1.9050	–	+0.0000/ -0.0020	–	–	–
	2315216-1	37	M	1.9050	–	+0.0000/ -0.0020	–	–	–
100	Bearing - LS4	38	N	2.2500	0.7500	–	–	–	–

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 20 of 28)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Inboard Hinge Bracket - 2322530-3, -39, -40, -55, -56, -60, -67, -68, -81, -82	2	A	Replace worn part.
2	Bearing - BP-4	2	A	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
	KSP-4	4	A	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
	MS27645-4	3	A	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
3	Bolt - AN4H11A	5	A	Replace worn part.
	AN4H12A	6	A	Replace worn part.
4	Middle Hinge Bracket - 2322530-19, -20, -27, -28, -51, -52, -89, -90	1	B	Replace worn part. Replace worn part.
5	Bearing - MS27645-4	1	B	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
6	Bolt - AN4H13A	1	B	Replace worn part.
7	Angle and Plate - 2322530-29, -30, -31, -32	1	C	Replace worn part. Drill holes in line in angle and plate prior to final attachment to allow installation of stud (8).
8	Stud - 2322530-33, -53	1	E	Replace worn part.
9	Outboard Hinge Bracket – 2322530-41, -42, -63, -64, -75, -76, -79, -80	1	D	Replace worn part.
10	Bearing - MS27645-4	1	D	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
11	Bolt - AN4H11A	5	D	Replace worn part.
	AN4H12A	6	D	Replace worn part.
12	Horn - 2324011-28	7	E	Replace worn part.
	2324011-235	8	E	Replace worn part.
13	Bearing - ABT4-105	8	E	Replace worn part. Secure with Loctite. Refer to 51-70-00. Bearing outer race must project equally from both sides of horn.
14	Bolt - AN4-7	7	E	Replace worn part.
	NAS464P4-8	8	E	Replace worn part.
15	Clevis Rod End - 2433003-2	9	E	Replace worn part.
	2333001-7	10	E	Replace worn part.
16	Bearing Rod End - HFV-4	1	F	Replace worn part.
	(Alt. TR-4)		F	Replace worn part.
	(Alt. REF-4)		F	Replace worn part.

Aileron System Fittings - Allowable Wear and Repair Data
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REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
17	Bolt - AN4-11	1	F	Replace worn part.
17A	Actuator - 2380027-10	11	F	Replace worn part.
18	Actuator Arm - 2333008-3	12	F	Replace worn part.
	2333008-6	13	F	Replace worn part.
19	Yoke - 2324518-1	14	G, H	Replace worn part.
	2324511-5	15	G, H	Replace worn part.
20	Bolt - NAS464P3-33	14	G	Replace worn part.
	NAS1304-34H	15	G	Replace worn part.
	NAS1104-38D	15	G	Replace worn part.
21	Bearing - MS27644-4	1	G	Replace worn part. Secure with Loctite. Refer to 51-70-00.
	(Alt. DDP4)			
	(Alt. BP-4)			
	(Alt. BR4)			
22	Bushing - NAS75-4-009	1	G	Replace worn parts. Press fit new bushings in wet primer.
	NAS75-4-008			
23	Bearing - BP-4	1	H	Replace worn part. Secure with Loctite. Refer to 51-70-00.
	(Alt. MS27645-4)			
	(Alt. KSP4)			
24	Bolt - NAS464P4-12	1	H	Replace worn part.
25	Aileron Drive Clevis -			
	2324512-3, -5	16	H, J	Replace worn part.
	2324517-1, -3	17	H, J	Replace worn part.
26	Bearing - AN201KP8A	1	J	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
27	Pulley Shaft - 2324513-3, -13	1	J, K	Replace worn part.
28	Pulley - 2324513-9, -10	1	K	Replace worn part.
	2324513-15, -16		K	Replace worn part.
29	Arm Link - 2324011-111, -223	1	H	Replace worn part.
30	Bolt - AN4-7	18	H	Replace worn part.
	NAS464P4-8	19	H	Replace worn part.
31	Bearing Rod End - HFV-4	1	H, C	Replace worn part.
	(Alt. TR-4)		H, C	Replace worn part.
	(Alt. REF-4T)		H, C	Replace worn part.
	(Alt. HFR-4M)		H, C	Replace worn part.
32	Pulley - MS24566-3B	20	L	Replace worn part.
33	Bolt - AN4H10A	20	L	Replace worn part.
34	Bracket - 2424034-1	20	L	Replace worn part.
35	Pulley - MS20220A1	1	M	Replace worn part.
36	Bolt - AN5H16A	1	M	Replace worn part.

Aileron System Fittings - Allowable Wear and Repair Data
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REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
37	Bracket - 2324505-29, -30, -39, -40, -67, -68	20	M	Replace worn part.
	5425013-4, -5	21	M	Replace worn part.
38	Pulley - MS20220A1	1	N	Replace worn part.
39	Bolt - AN5-17	1	N	Replace worn part.
40	Bracket - 2324505-6	20	N	Replace worn part.
	5425014-4, -5	21	N	Replace worn part.
41	Pulley - MS20221A1	1	P	Replace worn part.
42	Bolt - AN5H16A	1	P	Replace worn part.
43	Bracket - 2324505-23	20	P	Replace worn part.
	5425010-1	21	P	Replace worn part.
44	Pulley - MS20221A1	20	Q	Replace worn part.
45	Bolt - AN5-12	20	Q	Replace worn part.
46	Bracket -			
	Upper LH - 2315159-1, -5, -6	20	Q	Replace worn part.
	Lower LH - 2315159-2, -3	20	Q	Replace worn part.
47	Pulley - MS20221-1 (Alt. MS20221A1)	20	R	Replace worn part.
48	Bolt - AN5-12	20	R	Replace worn part.
49	Bracket - 2315157-1, -2, -3, -4	20	R	Replace worn part.
50	Bearing - AN201KP-5-A	20	S	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
51	Spacer - 2315125-5	20	S	Replace worn part.
52	Bolt - AN5H22A	20	S	Replace worn part.
53	Sector - 2315125-6	22	S	Replace worn part.
	2315124V1-2	23	S	Replace worn part.
	2315125-7	24	S	Replace worn part.
54	Bracket - 2315158-1, -5, -9	20	S	Replace worn part.
55	Pulley - MS20221A1	20	T	Replace worn part.
56	Belt - AN5-12	20	T	Replace worn part.
57	Bracket - 2315159-1, -2, -3, -5, -6	20	T	Replace worn part.
58	Pulley - MS20221-1 (Alt. MS20221A1)	20	U	Replace worn part.
			U	Replace worn part.
59	Bolt - AN5-12	20	U	Replace worn part.
60	Bracket - 2315157-3, -4	20	U	Replace worn part.
61	Pulley - MS20219A1	20	V	Replace worn part.
62	Bolt - AN4-10, -13	20	V	Replace worn part.
63	Bracket - 2315128-4, -5	20	V	Replace worn part.
64	Pulley - MS20219A1	20	W	Replace worn part.
65	Bolt - AN4-10	20	W	Replace worn part.
66	Bracket - 2315128-9	20	W	Replace worn part.

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 23 of 28)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
67	Pulley - MS20220-2	28	X	Replace worn part.
	2615177-1	29	X	Replace worn part.
68	Bolt - AN5-24, -25	1	X	Replace worn part.
69	Bracket - 2315120-11, -12, -33, -34, -37, -39, -40, -41	1	X	Replace worn part.
70	Pulley [1]	1	X	[1]
71	Pulley [2]	1	X	[2]
72	Pulley - MS20219A1	1	Y	Replace worn part.
73	Spacer - NAS43DD4-20	1	Y	Replace worn part.
74	Bolt - AN4-13	1	Y	Replace worn part.
75	Bracket - 2615105-7, -8, -14, -15, -16, -17, -18	27	Y	Replace worn part.
	2615105L96-1, -2	47	Y	Replace worn part.
76	Pulley - MS20220-2 (Alt. MS20220A2)	1	Z	Replace worn part.
77	Bolt - AN5-12	1	Z	Replace worn part.
78	Bracket - 2315120-7, -8	3	Z	Replace worn part.
79	Yoke Assembly - 2415152-1 (Alt. 2415152-3, -5)	39	AA, AB AC, AD AE, AF AG, AH AJ, AK AL	Replace worn part.
	2615270-1	40	AA, AB AC, AD AE, AF AG, AH AJ, AK AL	Replace worn part.
80	Bearing - MS27641KP8A AN201KP8A	1	AC	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
81	Pin - 2315152-33 (Alt. 2315152-9)	1	AC	Replace worn part.
82	Bearing - MS202000KP4	33	AG	Replace worn part. Stake new bearing in wet primer or secure with Loctite. Refer to 51-70-00.
83	Bushing - NAS75-4-015	33	AG	Replace worn part. Install bushing with wet primer on exterior surface.
84	Bolt - MS20004H15	33	AG	Replace worn part.
85	Bearing - MS27641KP6A AN201KP6A	1	AK	Replace worn part. Secure with Loctite. Refer to 51-70-00.
86	Bearing - B-539-ZZ (Alt. B-539-DD)	1	AL	Replace worn part. Secure with Loctite. Refer to 51-70-00.

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 24 of 28)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
87	Shaft - 2315153-28	30	AK, AL	Replace worn part.
	2615153-5 (Alt. 2315153-49)	31	AK, AL	Replace worn part.
	2315271-1	32	AK, AL	Replace worn part.
88	Pulley - 2315152-21	1	AA	Replace worn part.
89	Bushing - NAS75-5-010	44	AA	Replace worn part. Install bushing with wet primer on exterior surface.
	NAS75-5-109	45	AA	Replace worn part. Install bushing with wet primer on exterior surface.
	NAS75-5-114	46	AA	Replace worn part. Install bushing with wet primer on exterior surface.
90	Bushing - NAS75-5-016	45	AA	Replace worn part. Install bushing with wet primer on exterior surface.
	NAS77-5-34	46	AA	Replace worn part. Install bushing with wet primer on exterior surface.
91	Bolt - NAS1305-15D	43	AA	Replace worn part.
	NAS464P5-15	44	AA	Replace worn part.
	NAS464P5-38	45	AA	Replace worn part.
	NAS464P5-41	46	AA	Replace worn part.
92	Pulley - 2315152-21	1	AB	Replace worn part.
93	Bushing - NAS75-5-014	45	AB	Replace worn part. Install bushing with wet primer on exterior surface.
	NAS77-5-24	46	AB	Replace worn part. Install bushing with wet primer on exterior surface.
94	Bushing - NAS77-5-007	45	AB	Replace worn part. Install bushing with wet primer on exterior surface.
	NAS77-5-013	45	AB	Replace worn part. Install bushing with wet primer on exterior surface.
95	Bolt - NAS1305-15D	44	AB	Replace worn part.
	NAS464P5-22	45	AB	Replace worn part.
	NAS464P5-23	46	AB	Replace worn part.
96	Torque Tube - 2315151-2	34	J	Replace worn part.
97	Block Assy., Bearing - 2315151-6	34	K	Replace worn part.
98	Bearing - B-545-ZZ	34	K, L	Replace worn part.
99	Bellcrank - 2315151-4, -7	35	M	Replace worn part.
	2315154-1	36	M	Replace worn part.
	2315216-1	37	M	Replace worn part.
100	Bearing - LS4	38	N	Replace worn part.

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 25 of 28)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-002 thru 23-099; 24-100 thru 24-302, 24-309 thru 24-314; 25-001 thru 25-186; 35-001 thru 35-019; 36-001 thru 36-044
3	24-303 thru 24-308, 24-315 thru 24-357; 24-100 thru 24-302, 24-309 thru 24-314; 25-187 thru 25-364; 28-001 and Subsequent; 29-001 and Subsequent; 31-014 and Subsequent; 35-020 thru 35-504; 35-654 and Subsequent; 36-013 thru 36-053, 36-059 and Subsequent
4	25-365 and Subsequent; 31-001 thru 31-013; 35-505 thru 35-653; 36-054 thru 36-058
5	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent
6	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
7	23-001 thru 23-034 Except 23-011, 23-012, 23-015, 23-019, 23-031 and Except Aircraft Modified by ECR 392
8	23-011, 23-012, 23-015, 23-019, 23-031, 23-035 and Subsequent and Prior Aircraft Modified by ECR 392
9	23-011, 23-012, 23-015, 23-019, 23-031, 23-035 and Subsequent and Prior Aircraft Modified by ECR 392; 24-100 thru 24-351; 25-001 thru 25-229; 35-001 thru 35-133; 36-001 thru 36-034
10	24-352 and Subsequent; 25-230 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-134 and Subsequent; 36-035 and Subsequent
11	23-001 thru 23-034
12	23-035 thru 23-049 Except 23-039, 23-043 and Except Aircraft Modified by ECR 392
13	23-050 and Subsequent and Prior Aircraft Modified by ECR 392
14	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 35-001 thru 35-465; 36-001 thru 36-050
15	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-466 and Subsequent; 36-051 and Subsequent
16	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 35-001 thru 35-092; 36-001 thru 36-022
17	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-093 and Subsequent; 36-023 and Subsequent
18	23-001 thru 23-049 Except 23-011, 23-012, 23-015, 23-019, 23-031 23-039, 23-043 and Except Aircraft Modified by ECR 392
19	23-011, 23-012, 23-015, 23-019, 23-031, 23-039, 23-043, 23-050 and Subsequent; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
20	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
21	31-001 and Subsequent
22	23-001 thru 23-099; 24-100 and Subsequent; 25-001 thru 25-364; 28-001 and Subsequent; 29-001 thru 29-003; 35-001 thru 35-501
23	25-365 thru 25-373; 29-004; 35-502 thru 35-505, 35-509 thru 35-531, 35-589 thru 35-592
24	25-374 and Subsequent; 29-005; 35-506 thru 35-508, 35-532 thru 35-588, 35-593 and Subsequent; 36-001 and Subsequent
25	31-001 and 31-034
26	31-035 and Subsequent

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 26 of 28)

CODES	EFFECTIVITIES
27	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 thru 35-370, 35-399 and Subsequent; 36-001 thru 36-040, 36-042 and Subsequent
28	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent
29	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
30	23-001 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 24-100 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"
31	23-001 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 24-100 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 35-018 thru 35-487; 35-500, 35-502, 35-503, 35-505, 35-509 thru 35-567; 36-009 thru 36-060 and Prior Aircraft With 2315153-49 Shaft
32	23-001 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 24-100 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-488 thru 35-499, 35-501, 35-504, 35-506 thru 35-508, 35-568 and Subsequent; 36-061 and Subsequent
33	24-247 and Subsequent and Previous Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-082 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
34	23-001 thru 23-099; 24-100 thru 24-246 Except When Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-001 thru 25-081 Except When Modified by AAK 76-04A, "Reduced Approach Speed System"
35	23-001 and Subsequent
36	24-100 thru 24-152; 25-001 thru 25-016
37	23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-060, 23-065, 23-087, 23-096; 24-153 and Subsequent; 25-017 and Subsequent
38	23-001 and Subsequent Except 23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-060, 23-065, 23-087, 23-096
39	23-00 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
40	24-247 and Subsequent and Previous Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-082 thru 25-360 and Previous Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 28-001 thru 28-005; 29-001 thru 29-003; 35-001 thru 35-487; 36-001 thru 36-050
41	23-001 thru 23-029
42	23-030 thru 23-099
43	23-001 and Subsequent
44	23-001 thru 23-099; 24-100 thru 24-246; 25-001 thru 25-081
45	25-082 thru 25-360; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 thru 35-487; 36-001 thru 36-050

Aileron System Fittings Allowable Wear and Repair Data
Figure 1 (Sheet 27 of 28)

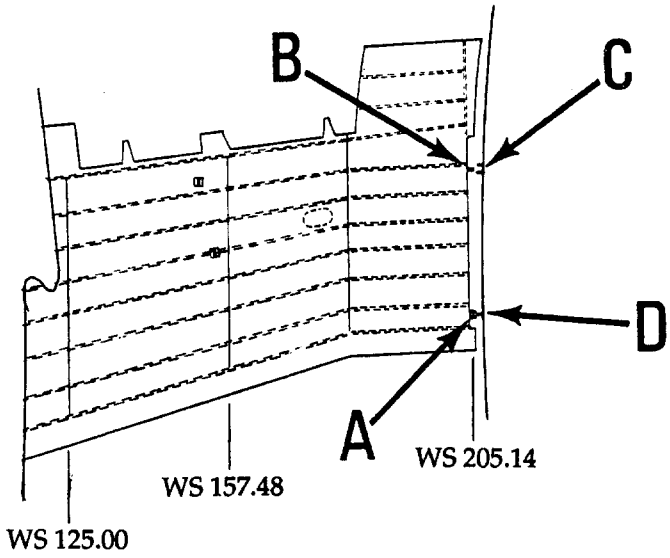
CODES	EFFECTIVITIES
46	25-361 and Subsequent; 29-004; 31-001 and Subsequent; 35-488 and Subsequent; 36-051 and Subsequent
47	35-371 thru 35-398; 36-041 Only

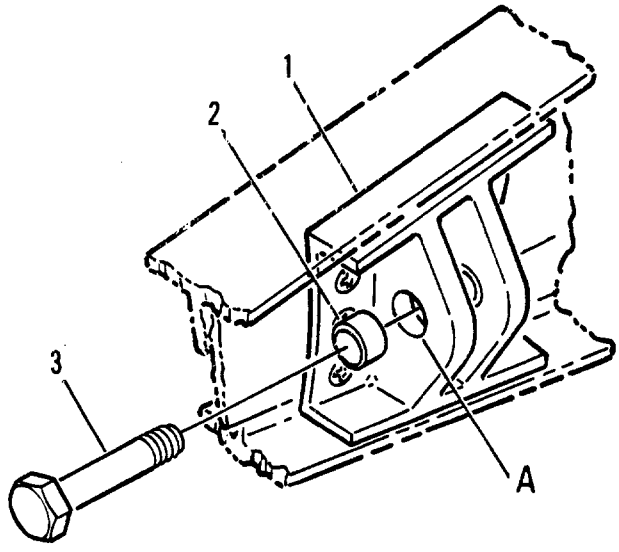
NOTES:

1. Refer to Rudder System for Part Number, Allowable Wear and Repair Data.

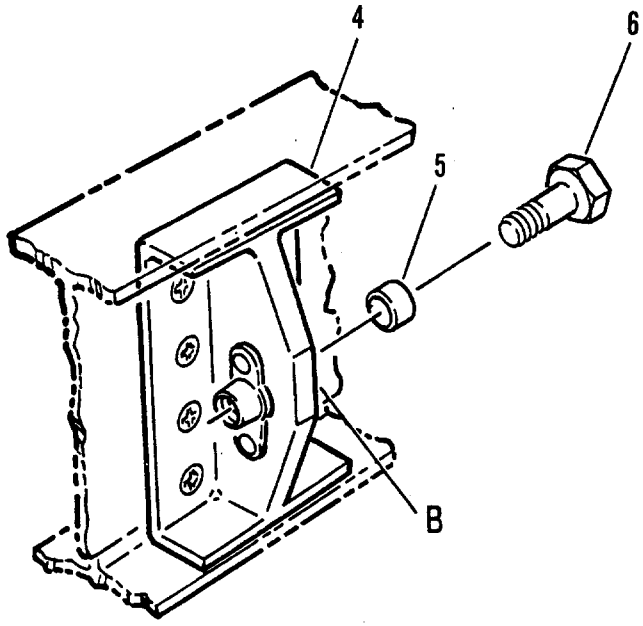
2. Refer to Elevator System for Part Number, Allowable Wear and Repair Data.

Aileron System Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 28 of 28)



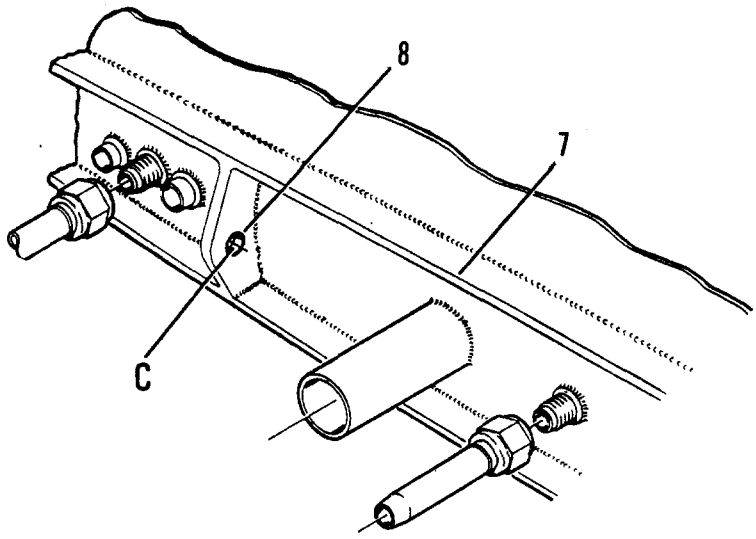


Detail A

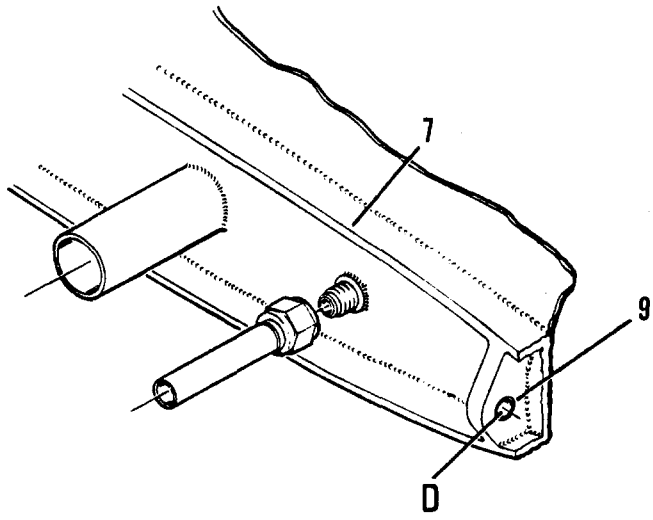


Detail B

Tip Tank Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 4)



Detail C



Detail D

Tip Tank Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 4)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Fitting - 2322372-1, -2, -7, -8	1	A	0.5625	–	+0.0000 -0.0010	–	–	–
2	Bushing - NAS75-7-009	1	A	0.4375	0.5638	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
3	Bolt, Fwd - NAS464P7A21	1	A	–	0.4358	–	+0.0009/ -0.0000	–	–
4	Fitting - 2322373-1, -2	1	B	0.5625	–	+0.0000/ -0.0010	–	–	–
5	Bushing - NAS75-7-009	1	B	0.4375	0.5638	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
6	Bolt, Aft - NAS464P7A14	1	B	–	0.4358	–	+0.0009/ -0.0000	–	–
7	Mounting Assembly - 2423160-3 thru -36	1	C	0.5631	–	+0.0000/ -0.0010	–	–	–
			D	0.5631	–	+0.0000/ -0.0010	–	–	–
8	Bushing - NAS75-7-017	1	C	0.4375	0.5638	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
9	Bushing - NAS75-7-017	1	D	0.4375	0.5638	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–

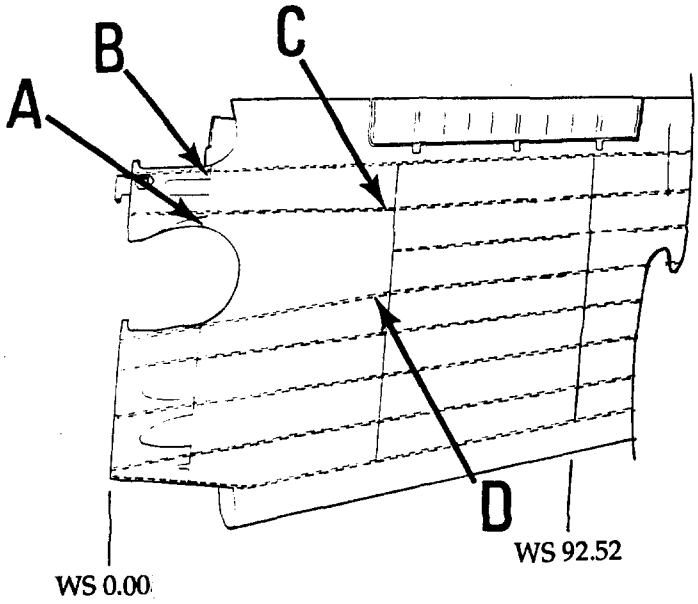
Tip Tank Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 4)

REPAIR DATA

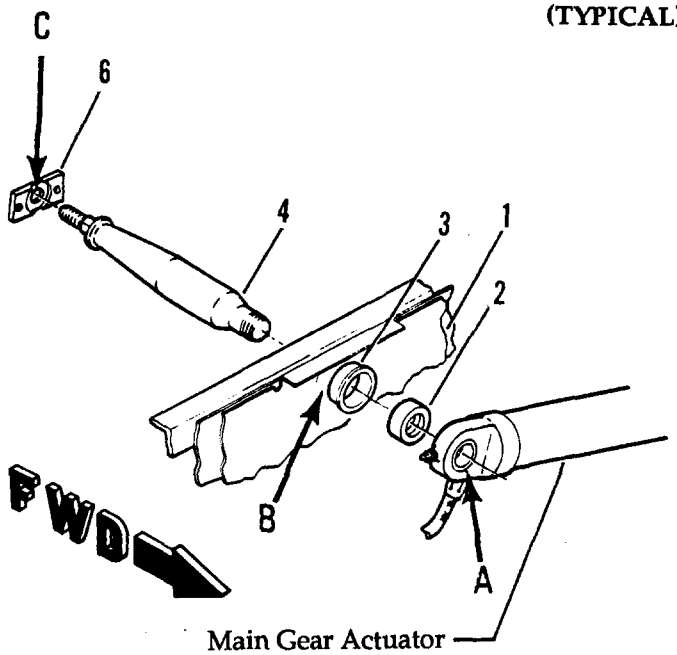
ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Fitting - 2322372-1, -2, -7, -8	1	A	Replace worn part.
2	Bushing - NAS75-7-009	1	A	Replace worn part. Install new bushing in wet primer.
3	Bolt - NAS464P7A21	1	A	Replace worn part.
4	Fitting - 2322373-1, -2	1	B	Replace worn part.
5	Bushing - NAS75-7-009	1	B	Replace worn part. Install new bushing in wet primer.
6	Bolt - NAS464P7A14	1	B	Replace worn part.
7	Mounting Assembly - 2423160-35, -36	1	C	Replace worn part.
		1	D	Replace worn part.
8	Bushing - NAS75-7-017	1	C	Replace worn part. Install new bushing in wet primer.
9	Bushing - NAS75-7-017	1	D	Replace worn part. Install new bushing in wet primer.

CODES	EFFECTIVITIES
1	23-001 THRU 23-099; 24-100 AND SUBSEQUENT; 25-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

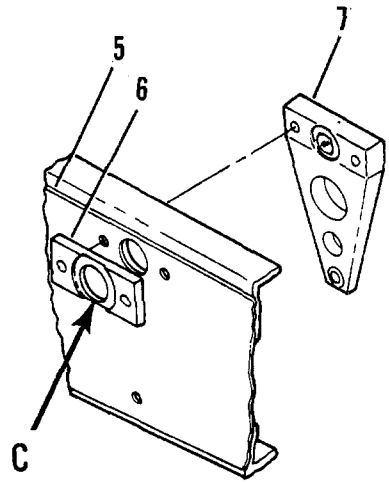
Tip Tank Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 4)



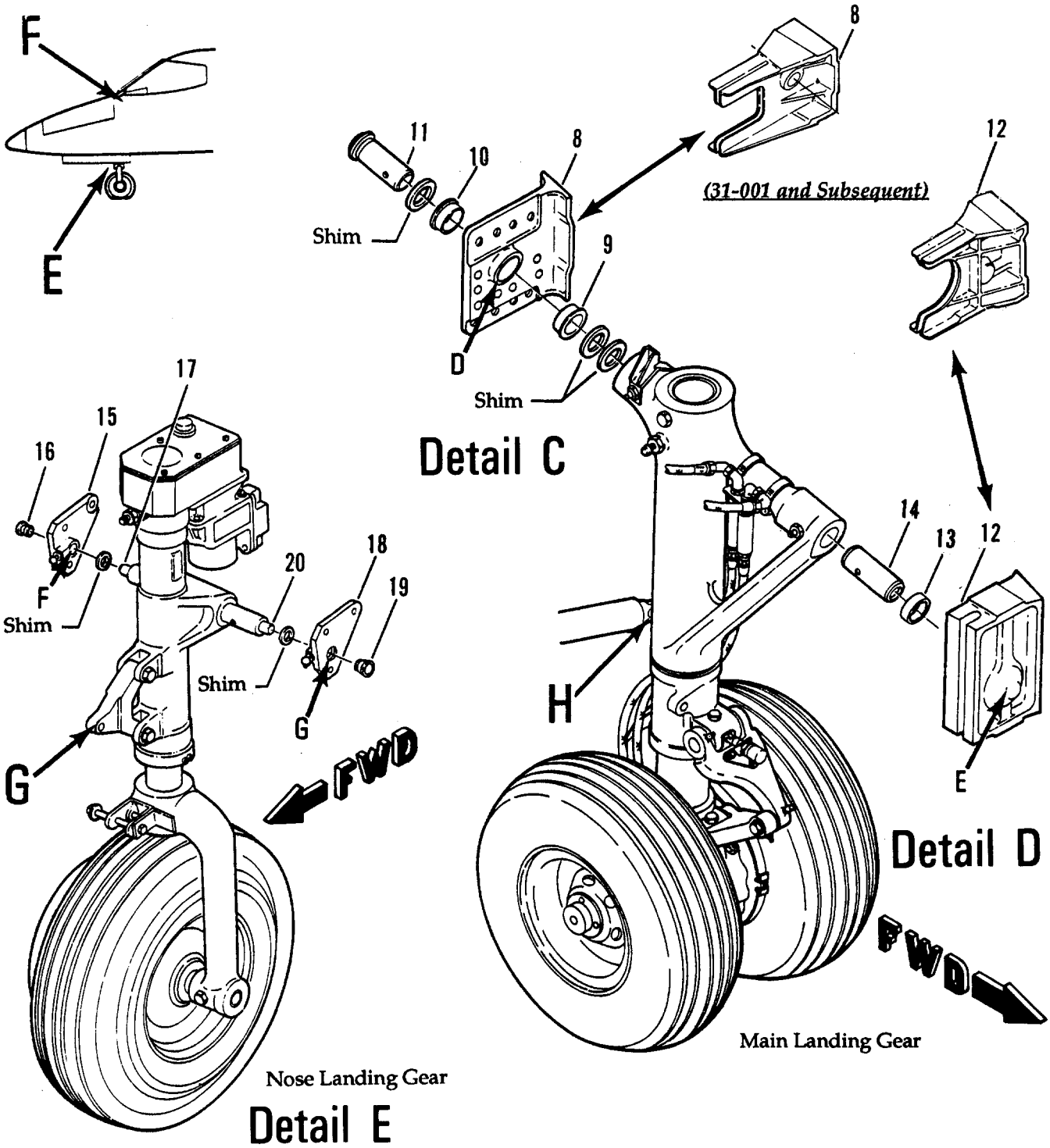
(TYPICAL)



Detail A

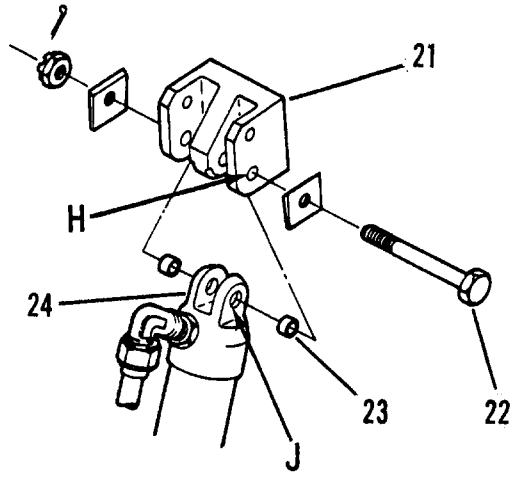


Detail B

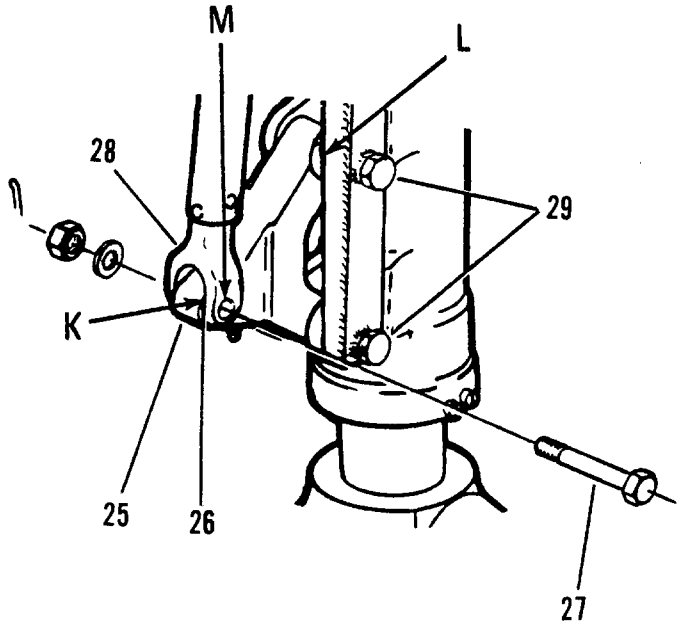


C6-3B

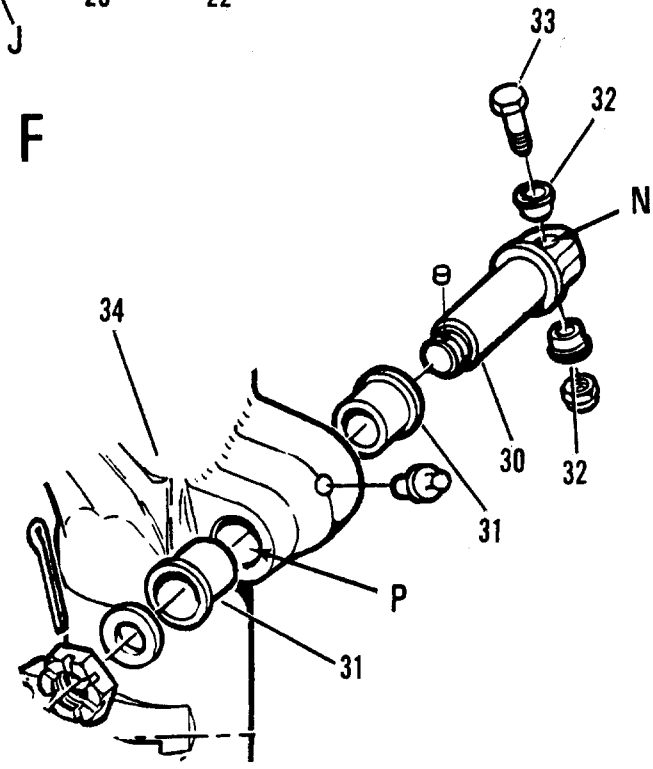
Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 11)



Detail F



Detail G



Detail H

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Doubler - 2322203-9, -10, -13, -14	1	B	2.0079	–	+0.0012/ -0.0000	–	–	–
2	Spacer - 2441001-1	2	A	1.0000	1.1000	±0.0100	+0.0200/ -0.0000	–	–
	2441007-1	3	A	1.0000	1.1000	±0.0100	+0.0200/ -0.0000	–	–
3	Bushing - 2322187-1, -2	1	B	1.7550	2.0360	±0.0010	+0.0008/ -0.0000	–	–
4	Pillar Assy. - 2341123-1, -14, -17, -18, -23	1	A	–	0.9990	–	+0.0000/ -0.0005	–	–
		B	–	1.7450	–	+0.0000/ -0.0100	–	–	
		C	–	0.8000	–	±0.0100	–	–	
5	Spar No. 8 2322212-1, -2, -39, -40, -43, -44,-49,-50,-58,-59, -65, -66, -69, -70, -76, -77	4	C	0.8750	–	±0.0100	–	–	–
	12225-0016-273, -274	5	C	0.8750	–	±0.0100	–	–	–
6	Bearing Plate 2322222-1	2	C	1.0200	–	±0.0300	–	–	–
	2441007-2, -5, -6	6	C	1.0200	–	±0.0300	–	–	–
7	Bearing Plate 2322221-1, -2, -3, -4, -5, -6, -7	1	C	0.6265	–	+0.0015/ -0.0000	–	–	–
8	Support - 2322204-1, -2	7	D	1.3130	–	+0.0000/ -0.0010	–	–	–
	5420000L-1437-1, -2	8	D	1.3130	–	+0.0000/ -0.0010	–	–	–
	2822163-17 (LH Only)	9	D	1.3130	–	+0.0000/ -0.0010	–	–	–
	2822163-18 (RH Only)	10	D	1.3130	–	+0.0000/ -0.0010	–	–	–
	12225-0011V1-2 (RH Only)	11	D	1.3130	–	+0.0000/ -0.0010	–	–	–

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
9	Bushing - 2322197-1	1	D	1.1240	1.3160	+0.0020/ -0.0000	+0.0000/ -0.0020	1.128	–
10	Bushing - 2322198-1	1	D	1.1200	1.3160	+0.0020/ -0.0000	+0.0000/ -0.0020	1.128	–
11	Pin - 2341110-1, -2, -003	1	D	–	1.1245	–	+0.0000 -0.0020	–	1.121
12	Fitting, Main Gear Fwd - 2322146-3, -4, -5, -6	12	E	1.9685	–	+0.0002/ -0.0008	–	–	–
	2322146-7, -8	13	E	1.9685	–	+0.0002/ -0.0008	–	–	–
	5420000V5-1	14	E	1.9685	–	+0.0002/ -0.0008	–	–	–
	2822159-21, -22	15	E	1.9685	–	+0.0002/ -0.0008	–	–	–
13	Bearing - BLS-32	1	E	–	–	–	–	–	–
	(Alt. VTB08160)		E	–	–	–	–	–	–
	(Alt. 16-577)		E	–	–	–	–	–	–
14	Fwd Trunnion Pin - 2341111-1	16	E	0.7500	1.2593	±0.0002	+0.0002/ -0.0015	–	–
	2341111-2	17	E	0.7500	1.2588	±0.0300	+0.0002/ -0.0015	–	–
	6041113-001	5	E	0.6000	1.2588	–	+0.0002/ -0.0015	–	–
15	Bearing Plate 2311580-4, -9, -13, -15	1	F	0.8125	–	±0.0005	–	–	–
16	Bearing - 2311580-5, -6	1	F	0.6090	0.8145	+0.0080/ -0.0010	+0.0000/ -0.0010	–	–
17	Pin - 2342108-1	1	F	–	0.6240	–	+0.0000/ -0.0015	–	–
18	Bearing Plate - 2311580-3, -12, -14	1	G	0.8125	–	±0.0005	–	–	–
19	Bearing - 2311580-5, -6, -11	1	G	0.6090	0.8145	+0.0080/ -0.0010	+0.0000/ -0.0010	–	–
20	Pin - 2342108-1	1	G	–	0.6240	–	+0.0000 -0.0015	–	–
21	Fitting - 2411243-1, -3	1	H	0.4375	–	±0.0005	–	–	–

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
22	Bolt - NAS464P7L53	1	H	–	0.4367	–	+0.0000/ -0.0009	–	–
	NAS464P5LA7	16	H	–	0.4367	–	+0.0000/ -0.0009	–	–
23	Spacer - NAS43DD7-25	1	H	0.4900	0.5780	+0.0000/ -0.0500	+0.0000/ -0.0300	–	–
24	Nose Gear Actuator	1	J	0.4367	–	+0.0000/ -0.0009	–	–	–
25	Bracket - 2342111-1, -3	1	K	0.5620	–	+0.0010/ -0.0000	–	–	–
			L	0.5000	–	+0.0010/ -0.0000	–	–	–
26	Bushing - NAS77A7-28	1	K	0.4375	0.5638	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
27	Bolt - NAS464P7L20	1	K	–	0.4367	–	+0.0000/ -0.0009	–	–
28	Clevis - 2317103-1	18	M	0.4380	–	+0.0000/ -0.0010	–	–	–
	Clevis - 2417012-1	19	M	0.4390	–	+0.0000/ -0.0010	–	–	–
29	Bolt - NAS464P8-33	1	L	–	0.4991	–	+0.0000/ -0.0009	–	–
30	Actuator Attach Pin - 2341109-2, -4, -5	20	N	0.6872	–	+0.0010/ -0.0000	–	–	–
	(Shank Diameter)		–	–	1.1220	–	+0.0000/ -0.0010	–	–
	5441101-2	21	N	0.6872	–	+0.0010/ -0.0000	–	–	–
	(Shank Diameter) (Finish 63 RMS)		–	–	1.1240	–	+0.0000/ -0.0010	–	–
31	Actuator Pin Bushing - 2341112-1, -2	22	P	1.1250	1.2520	+0.0015/ -0.0000	+0.0000/ -0.0000	–	–
	5441101-3, -4	23	P	1.1250	1.2520	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
	2341130-3, -4	24	P	1.1250	1.2520	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
32	Bushing - 2341109-3	20	N	0.5625	0.6892	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
	5441101-3	21	N	0.5625	0.6892	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
33	Bolt - NAS464P9-20	1	N	–	0.5616	–	+0.0000/ -0.0009	–	–
34	Cylinder Assy. - 2341101-1, -2	25	P	1.2500	–	+0.0010/ -0.0000	–	–	–
	2441011-1, -2	26	P	1.2500	–	+0.0010/ -0.0000	–	–	–
	2341100-2045-1L, -1R, -2R, -3L, -4L, -5L, -6L, -7L, -8L, -9R, -10R	27	P	1.2500	–	+0.0010/ -0.0000	–	–	–
	2441011-13, -14, -37, -38, -39, -40	28	P	1.2500	–	+0.0010/ -0.0000	–	–	–

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 11)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Doubler - 2322203-9, -10, -13, -14	1	B	Replace worn part.
2	Spacer - 2441001-1	2	A	Replace worn part.
	2441007-1	3	A	Replace worn part.
3	Bushing - 2322187-1, -2	1	B	Replace worn part.
4	Pillar Assy. - 2341123-1, -14, -17, -18, -23	1	A, B, C	Replace worn part.
5	Spar No. 8 - 2322212-1, -2, -39, -40, -43, -44, -49, -50, -58, -59, -65, -66, -69, -70, -76, -77	4	C	Replace worn part.
	12225-0016-273, -274	5	C	Replace worn part.
6	Bearing Plate - 2322222-1	2	C	Replace worn part.
	2441007-2,-5	6	C	Replace worn part.
7	Bearing Plate - 2322221-1, -2, -3, -4, -5, -6, -7	1	C	Replace worn part.
8	Support - 2322204-1, -2	7	D	Replace worn part.
	5420000L-1437-1, -2	8	D	Replace worn part.
	2822163-17 (LH Only)	9	D	Replace worn part.
	2822163-18 (RH Only)	10	D	Replace worn part.
	12225-0011V1-2 (RH Only)	11	D	Replace worn part.
9	Bushing - 2322197-1	1	D	Replace worn part. Line ream on installation.
10	Bushing - 2322198-1	1	D	Replace worn part. Line ream on installation.
11	Pin - 2341110-1, -2, -003	1	D	Replace worn part.
12	Fitting, Main Gear Fwd –			
	2322146-3, -4, -5, -6	12	E	Repair or replace worn part.
	2322146-7, -8	13	E	Repair or replace worn part.
	5420000V5-1	14	E	Repair or replace worn part.
	2822159-21, -22	15	E	Repair or replace worn part.
13	Bearing - BLS-32	1	E	Replace worn part. 3
	(Alt. VTB08160)	1	E	Replace worn part. 3
	(Alt. 16-577)	1	E	Replace worn part. 3
14	Pin - 2341111-1	16	E	Replace worn part.
	2341111-2	17	E	Replace worn part.
	6041113-001	5	E	Replace worn part.
15	Bearing Plate - 2311580-4, -9, -13, -15	1	F	Replace worn part.
16	Bearing - 2311580-5, -6	1	F	Replace worn part. 4
17	Pin - 2342108-1	1	F	Replace worn part.
18	Bearing Plate - 2311580-3, -12, -14	1	G	Replace worn part.
19	Bearing - 2311580-5, -6, -11	1	G	Replace worn part. 4
20	Pin - 2324108-1	1	G	Replace worn part.
21	Fitting - 2411243-1, -3	1	H	Replace worn part.
22	Bolt - NAS464P7L53	1	H	Replace worn part.
	NAS464P5LA7	16	H	Replace worn part.

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 11)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
23	Spacer - NAS43DD7-25	1	H	Replace worn part.
24	Nose Gear Actuator	1	J	Replace worn part.
25	Bracket - 2342111-1	1	K, L	Replace worn part.
26	Bushing - NAS77A-7-28	1	K	Replace worn part. 5
27	Bolt - NAS464P7L20	1	K	Replace worn part.
28	Clevis - 2317103-1	18	M	Replace worn part.
	2417012-1	19	M	Replace worn part.
29	Bolt - NAS464P8-33	1	L	Replace worn part.
30	Actuator Attach Pin -			
	2341109-2, -4, -5	20	N	Replace worn part.
	5441101-2	21	N	Replace worn part.
31	Actuator Pin Bushing -			
	2341112-1, -2	22	P	Replace worn part. 1
	5441101-3, -4	23	P	Replace worn part. 1
	2341130-3, -4	24	P	Replace worn part. 1
32	Bushing - 2341109-3	20	N	Replace worn part. 2
	5441101-3	21	N	Replace worn part. 2
33	Bolt - NAS464P9-20	1	N	Replace worn part.
34	Cylinder Assy. - 2341101-1, -2	25	P	Replace worn part.
	2441011-1, -2	26	P	Replace worn part.
	2341100-2045-1L, -1R, -2R, -3L, -4L, -5L, -6L, -7L, -8L, -9R, -10R	27	P	Replace worn part.
	2441011-13, -14, -37, -38, -39, -40	28	P	Replace worn part.

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 11)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-003 and Subsequent Except Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 24-100 thru 24-229 Except Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 25-001 thru 25-069 Except Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"
3	23-003 thru 23-099 When Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 24-230 and Subsequent and Prior Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 25-070 and Subsequent and Prior Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
4	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
5	31-001 and Subsequent
6	23-001 thru 23-099 When Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 24-230 and Subsequent and Previous Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 25-070 and Subsequent and Previous Aircraft Modified by AMK 71-03A, "Main Landing Gear Actuator Bearing Retainer Kit"; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
7	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
8	28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-014
9	31-015 and Subsequent
10	31-015 thru 31-042; 31-058 and Subsequent
11	31-043 thru 31-057
12	23-001 thru 23-099 When Used With 2322146-1, -2 Fwd Main Gear Fittings; 24-100 and Subsequent When Used With 2322146-1, -2 Fwd Main Gear Fittings; 25-001 and Subsequent When Used With 2322146-1, -2 Fwd Main Gear Fittings; 35-001 thru 35-549; 36-001 thru 36-053
13	23-001 thru 23-099 When Used With 2322146-4, -5 or -6 Fwd Main Gear Fittings; 24-100 and Subsequent When Used With 2322146-4, -5 or -6 Fwd Main Gear Fittings; 25-001 and Subsequent When Used With 2322146-4, -5 or -6 Fwd Main Gear Fittings; 28-001 and Subsequent; 29-001 and Subsequent; 35-550 and Subsequent; 36-054 and Subsequent
14	31-012 Only
15	31-001 and Subsequent Except 31-012
16	23-001 thru 23-099 When Used With 2322146-1, -2 Fwd Main Gear Fittings; 24-100 and Subsequent When Used With 2322146-1, -2 Fwd Main Gear Fittings; 25-001 and Subsequent When Used With 2322146-1, -2 Fwd Main Gear Fittings
17	23-001 thru 23-099 When Used With 2322146-4, -5 or -6 Fwd Main Gear Fittings; 24-100 and Subsequent When Used With 2322146-4, -5 or -6 Fwd Main Gear Fittings; 25-001 and Subsequent When Used With 2322146-4, -5 or -6 Fwd Main Gear Fittings; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
18	23-00 thru 23-099; 24-100 thru 24-357; 25-011 thru 25-277; 28-001 thru 28-005; 29-001 thru 29-002; 35-001 thru 35-249; 36-001 thru 36-044
19	24-358 and Subsequent; 25-278 and Subsequent, 28-006 and Subsequent; 29-003 and Subsequent; 31-001 and Subsequent; 35-250 and Subsequent; 36-045 and Subsequent
20	23-001 thru 23-099 Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 24-100 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 25-001 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 28-001 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 29-001 and Subsequent; 35-001 thru 35-611; 36-001 thru 36-055 Except 36-054

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 11)

CODES	EFFECTIVITIES
21	23-001 thru 23-099 When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 24-100 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 25-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 28-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 31-001 and Subsequent; 35-612 and Subsequent; 36-054, 36-056 and Subsequent
22	23-001 thru 23-099 Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 24-100 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 25-001 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 28-001 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 31-001 thru 31-055; 35-001 thru 35-672; 36-001 thru 36-063
23	31-056 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 35-672 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 36-063 and Subsequent Except When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"
24	23-001 thru 23-099 When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 24-100 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 25-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 28-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 31-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 35-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"; 36-001 and Subsequent When Modified by SSK 973 "Replacement of Main Landing Gear Bushing and Pin"
25	23-001 thru 23-099; 24-100 thru 24-329; 25-001 thru 25-205; 35-001 thru 35-066; 36-001 thru 36-017
26	24-330 and Subsequent; 25-206 and Subsequent; 35-067 thru 35-135; 36-018 thru 36-034
27	35-136 thru 35-250; 36-035 thru 36-044
28	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-251 and Subsequent; 36-045 and Subsequent

NOTES:

1> Install new bushing with wet primer. Seal edges carefully. Line ream bushing to 1.1265 (+0.0005/-0.0000) inch after installation.

2> Install new bushing with wet primer. Seal edge carefully.

3> Install new bearing with light coating of corrosion preventative per MIL-C-16173, Grade 1. Install bearing so that assembly slot in outer race is facing aft and is horizontal within ±15°.

4> Align oil hole in bearing outer race with fitting on forward edge of bearing plate.

5> Install new bushing with wet primer. Seal edges carefully. Line ream bushings to 0.437 (+0.001/-0.000) inch after installation.

Landing Gear Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 11)

LANDING GEAR FITTINGS - REPAIR

1. **General**
   - A. It is the responsibility of the aircraft owner/maintenance facility to determine qualifications of maintenance personnel performing repair procedures. As always, a clean environment and good general shop practices shall be exercised any time repairs are performed on the aircraft.
   - B. Prior to, and after performing, any repairs on the Landing Gear Fittings, ensure serviceability and reliability of part. If serviceability and reliability of any part or repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information.
   - C. Repairs must be equal to, or greater in strength, than the original structure. Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   - D. Repairs for structure not included in this section does not necessarily indicate that the structure involved is non-repairable, but that the application of a typical repair procedure to theoretical damage has not yet been developed.
   - E. For repair procedures pertaining to items not covered in this section, refer to that items respective chapter.
   - F. Following any repair or maintenance procedures on the aircraft structure/components, update all aircraft log books as required.
   - G. Following any repair or maintenance procedures on the aircraft structure/components, ensure inspection records pertaining to any specific repair-related procedure are identified, properly documented and closely adhered too.
   - H. All parts fabricated by the repair facility shall be identified for future reference. Marking of parts shall be accomplished in a manner which does not affect the serviceability and reliability of the part.

2. **Limitations and Inspections**
   - A. Limitations
     - (1) Learjet engineering approved repairs to landing gear fittings are limited to those items/areas as outlined in step 4., REPAIR PROCEDURES.
     - (2) Limitations applied to repairs in this section must be followed unless Learjet engineering authority to the contrary is given.
     - (3) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. Cracks in any fitting or forging are not allowed. Fittings or forgings with bushing shall be repaired.
   - B. Inspections
     - (1) Following Forward Trunnion Mount Fitting Repair (*P/Ns 2322146-1 thru -8, 2822159-21 & -22, and 5420000V5-1 & -2*):
       - (a) Forward trunnion mount fitting retainer (*P/N 12224-005-3*) must be inspected every 600 hours for security of retainer screws and for cracks in the fitting.
       - (b) Forward trunnion mount fitting retainer (*P/N 12224-005-3*) must be removed each time main landing gear is removed and fitting must be inspected for any structural damage.

3. **Materials and Processes**
   - A. Materials
     - (1) Repair materials and required treatments or processes will be listed in the repair procedure. Material or treatment variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   - B. Processes
     - (1) Refer to the appropriate sections, in this chapter, for chemical process and treatment specifications.

4. Repair Procedures

NOTE: All dimensions are in inches unless otherwise specified.

A. Forward Trunnion Mount Fitting Repair (*P/Ns 2322146-1 thru -8, 2822159-21 and -22, and 5420000V5-1 and -2*) (See Figure 201.)

NOTE: Repair procedures for both LH and RH forward trunnion mount fittings, *P/N 2322146-1 thru -8, 2822159-21 and -22, and 5420000V5-1 and -2*, are identical unless otherwise specified.

(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Countersink (100°)		Commercially available	Countersink retainer.
Drill	#19	Commercially available	Drill retainer.
Drill	#29	Commercially available	Drill trunnion mount fitting.
Tap	8-32 UNC-3A	Commercially available	Tap retainer screw holes in trunnion mount fitting.

(2) Parts and Materials

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Retainer (1 ea.)	12224-005-3	Fabricate locally	Repair fitting.
Screw (6 ea.)	MS24694-S5	Commercially available	Secure retainer to fitting.
Loctite	222	Loctite Corp. Newington, CT 06111	Screw lock.
Trunnion Mount Bearing	(Refer to the applicable Learjet IPC.)		

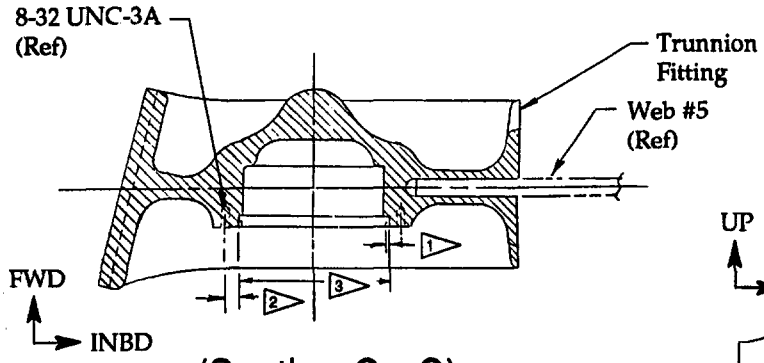
(3) Repair Procedure: (See Figure 201.)
  (a) Remove main landing gear strut assembly from aircraft. (Refer to the applicable Learjet Maintenance Manual.)
  (b) Remove internal retainer ring and forward trunnion mount bearing.
  (c) Clean and rework surrounding area where material has been broken (or cracked) at snap ring flange to remove all damaged flange material. (See Details A and B.) Ensure maximum allowable dimension of 2.125 inch, as shown in Detail A, flag ③, has not been exceeded.
  (d) Inspect area with dye penetrant and/or Eddy current method for possible crack extension. (Contact Learjet Field Service if more cracks are found.)
  (e) Fabricate 12224-005-3 retainer per Detail C. Do **not** drill screw hole locations in retainer at this time.

MATERIAL NOTE: (*Preferred*) Fabricate 12224-005-3 retainer out of #300 Series A151 Stainless Steel, 1/2 hard or harder.

(*Alternate*) 4130 Steel, heat treat 140-160 KSI, cadmium plate and epoxy paint after machining.

  (f) Providing maximum edge distance obtainable, locate and mark six (6) hole locations on forward fitting. Check hole locations for a minimum edge distance of 0.20 inch on fitting.
  (g) Transfer hole locations to -3 retainer and drill retainer to match fitting. (See Detail C.)
  (h) Using a drill stop on drill, drill six (6) holes in fitting not less than 0.450 inch and not more than 0.050 inch deep.
  (i) Tap screw holes in fitting using 8-32 UNC-3A tap.
  (j) Chemically treat reworked area for corrosion and touch-up prime exterior surface of fitting.
  (k) Identify -3 retainer for future reference.
  (l) Using a new trunnion mount bearing, install bearing with a light coating of corrosion preservative per MIL-C-16173 Grade 1. Install bearing so assembly slot in outer race is facing aft and is horizontal within ±15°.
  (m) Install -3 retainer. Add Loctite 222, or equivalent, to retainer screw threads.
  (n) Install main landing gear strut assembly. (Refer to the applicable Learjet Maintenance Manual.)
  (o) Update all aircraft log books.

(4) Limitations and Inspections Requirements:
  (a) Forward trunnion mount fitting retainer (P/N 12224-005-3) must be inspected every 600 hours for security of retainer screws and for cracks in the fitting.
  (b) Forward trunnion mount fitting retainer (P/N 12224-005-3) must be removed each time main landing gear is removed and fitting must be inspected for any structural damage.



(Section C - C)

(-3 RETAINER NOT SHOWN FOR CLARITY)

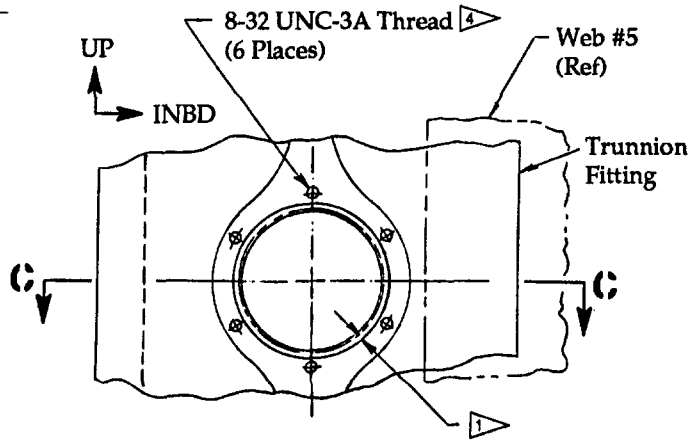
Detail A

1 Remove this damaged portion around edge of lock ring location.

2 Check hole location for minimum edge distance of 0.20 inch on trunnion fitting.

3 2.125 maximum allowable dimension after 1 information is applied.

4 Maximum hole depth not to exceed 0.500 inch, minimum depth not less than 0.450 inch. Locate to match -3 retainer.

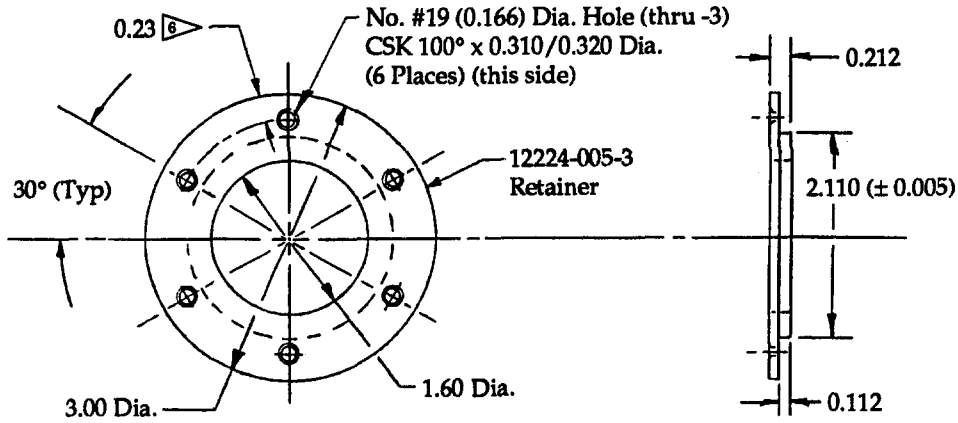


(-3 RETAINER NOT SHOWN FOR CLARITY)

Detail B

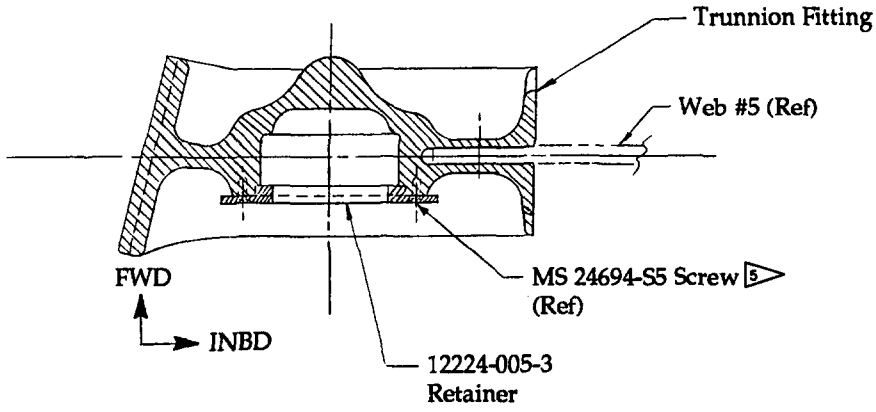
5 Add Loctite 222, or equivalent, on screw only (6 places). (Refer to 51-70-00.)

6 This dimension may change after preliminary location of six (6) holes in trunnion fitting.

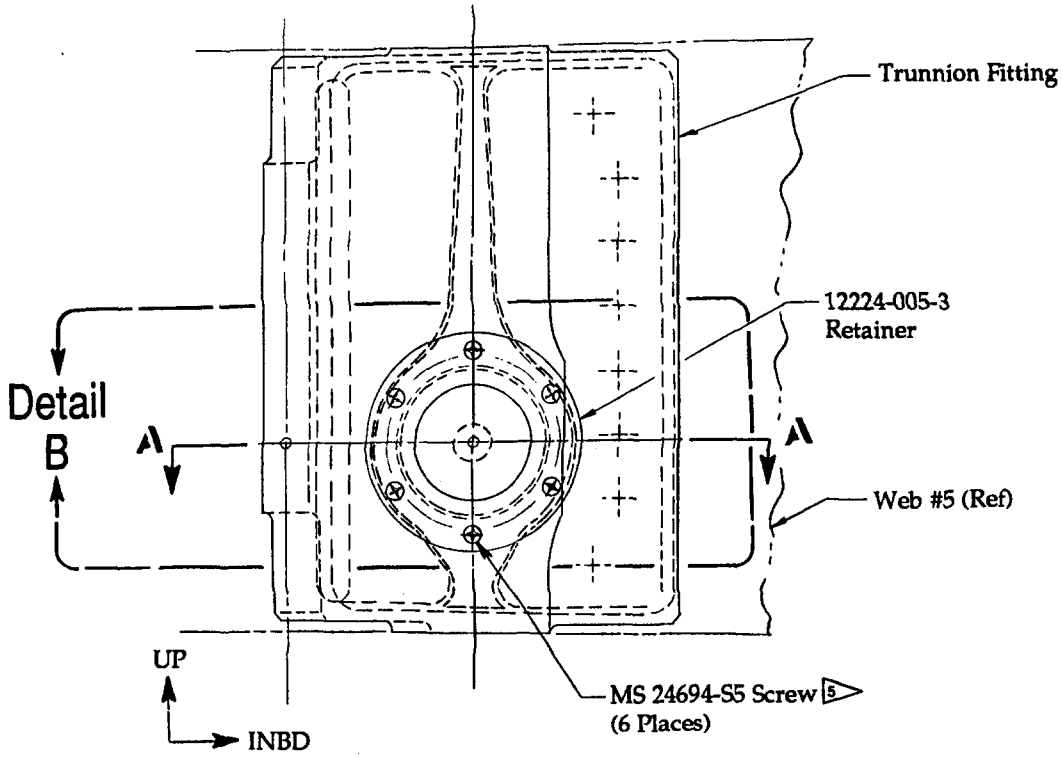


Detail C

Forward Trunnion Mount Fitting - Repair
Figure 201 (Sheet 1 of 2)



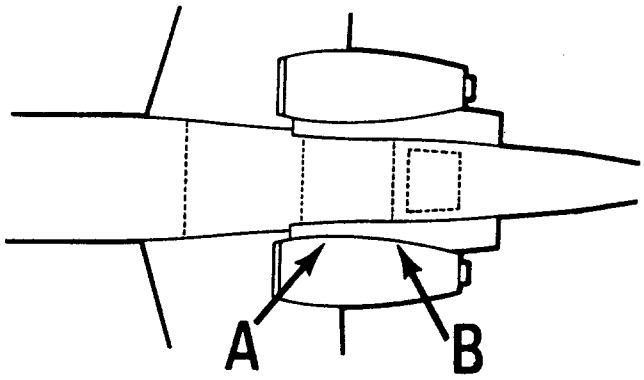
(Section A - A)

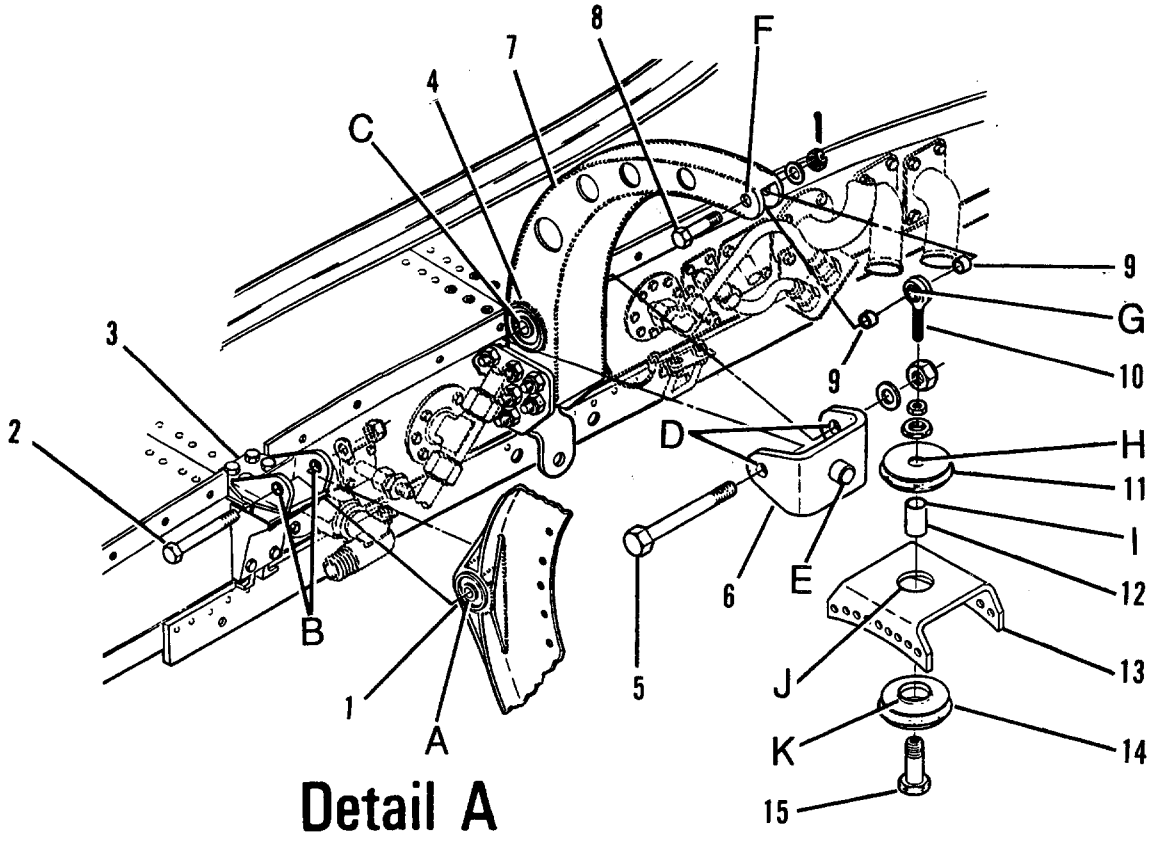


(VIEW LOOKING FORWARD AT SPAR #5)
(BEARING NOT SHOWN FOR CLARITY)

Detail D

Forward Trunnion Mount Fitting - Repair
Figure 201 (Sheet 2 of 2)





Detail A

Detail B

A75C-1
B7-6A

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 4)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
1	Engine Mount, Fwd - LM308-19	1	A	0.0000	–	+0.0000/ -0.0000	–	–	–
2	Bolt - Fwd NAS464-6A37	2	A	–	0.3734	–	+0.0000/ -0.0005	–	–
	NAS464P6A39	3	A	–	0.3742	–	+0.0000/ -0.0009	–	–
3	Fitting - Engine Support 2351005-1, -2	4	B	0.3750	–	+0.0020/ -0.0000	–	–	–
	2351005-3, -4	5	B	0.3750	–	+0.0020/ -0.0000	–	–	–
4	Engine Mount - Lower Aft LM308-33	1	C	0.0000	–	+0.0000/ -0.0000	–	–	–
5	Bolt - Lower Aft NAS464P8A64	1	C, D	–	0.4991	–	+0.0000/ -0.0009	–	–
6	Mount Assy - Engine Shock 2451004-1	1	D	0.5000	–	+0.0015/ -0.0000	–	–	–
			E	0.7490	–	+0.0000/ -0.0005	–	–	–
7	Yoke Assembly - Engine 2351038-40	1	F	0.3747	–	+0.0015/ -0.0000	–	–	–
8	Bolt - Upper Aft NAS464P6L20	1	F, G	–	0.3742	–	+0.0000/ -0.0009	–	–
9	Spacer - Upper Aft NAS43HT6-16	1	F, G	0.4020	0.5000	+0.0250/ -0.0250	+0.0015/ -0.0015	–	–
10	Rod End - Engine Mounting REM-6TH	1	G, H	0.0000	0.0000	+0.0000/ -0.0000	+0.0000/ -0.0000	–	–
11	Mount - Top Half LM308-21	1	H	0.0000	–	+0.0000/ -0.0000	–	–	–
12	Sleeve - Mount LM308-23	1	H, I	0.0000	0.0000	+0.0000/ -0.0000	+0.0000/ -0.0000	–	–
13	Pad - Engine Mount, Upper 2351031-3	1	I	1.4000	–	+0.0000/ -0.0000	–	–	–

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 4)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
14	Mount - Bottom Half LM308-22	1	K	0.0000	–	+0.0000/ -0.0000	–	–	–
15	Bolt - 2351032-6	1	I	–	0.4991	–	+0.0000/ -0.0009	–	–

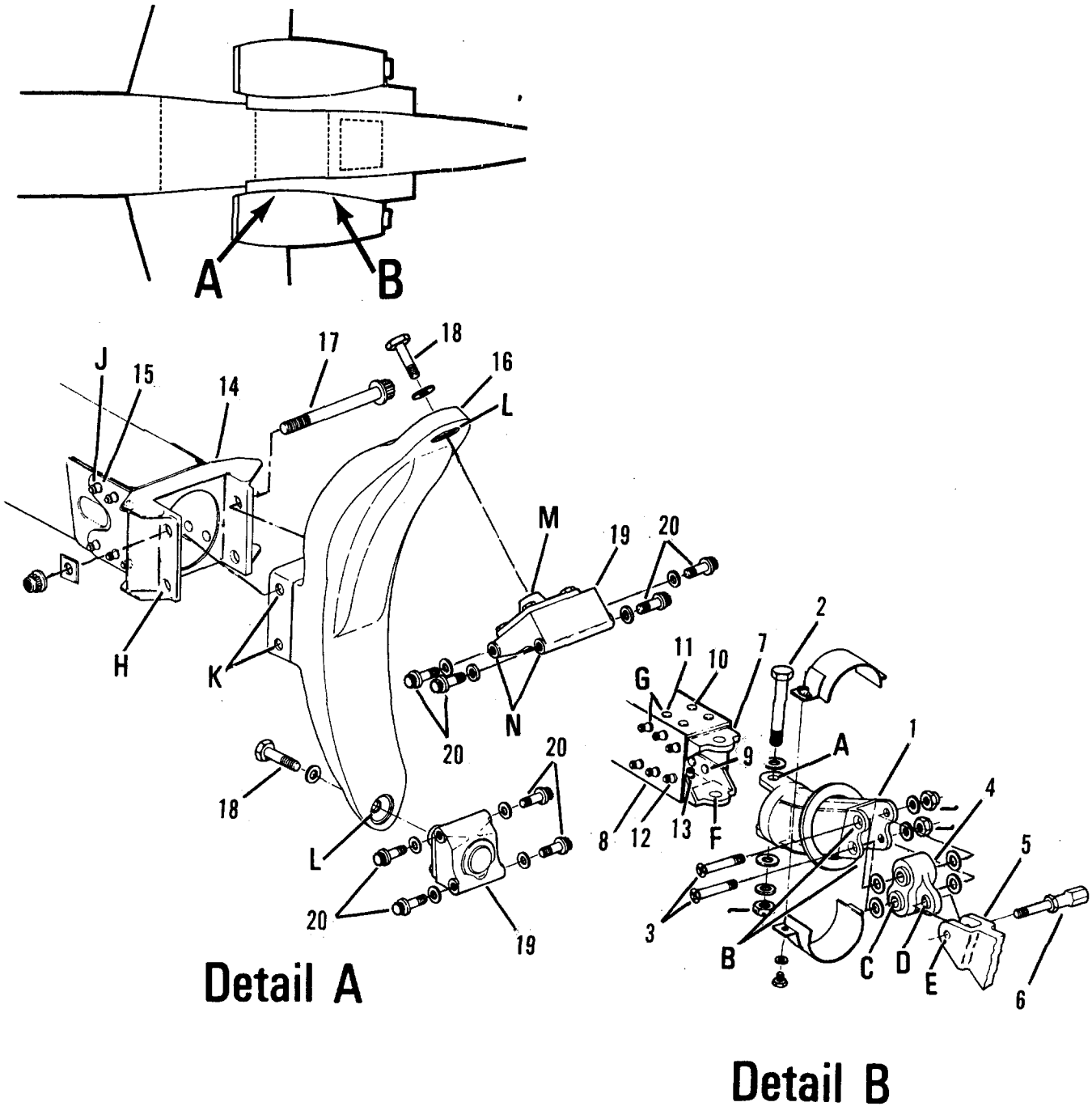
Engine Mount Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 4)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Engine Mount, Aft - LM308-19	1	A	Replace worn part.
2	Bolt - FWD NAS464-6A37	2	A	Replace worn part.
	NAS464P6A39	3	A	Replace worn part.
3	Fitting - Engine Support 25510005-1, -2	4	B	Replace worn part.
	23510005-3, -4	5	B	Replace worn part.
4	Engine Mount - Lower Aft LM308-33	1	C	Replace worn part.
5	Bolt - Lower Aft NAS464P8A64	1	C, D	Replace worn part.
6	Mounting Assy - Engine Shock 2451004-1	1	D	Replace worn part.
7	Yoke Assy - Engine 2351038-40	1	E	Replace worn part.
8	Bolt - Upper Aft NAS464P6L201	1	E, F	Replace worn part.
9	Spacer - Upper Aft NAS43HT6-16	1	E, F	Replace worn part.
10	Rod End - Engine Mounting	1	F, G	Replace worn part.
11	Mount - Top Half LM308-21	1	G	Replace worn part.
12	Sleeve - Mount LM308-23	1	G, H	Replace worn part.
13	Pad - Engine Mount, Upper 2351031-3	1	H	Replace worn part.
14	Mount - Bottom Half LM308-22	1	J	Replace worn part.
15	Bolt 2351032-6	1	I	Replace worn part.

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent
2	23-001 thru 23-069
3	23-070 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent
4	23-001 thru 23-049
5	23-050 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 4)


A
B
J
15
14
17
18
16
L
M
19
20
H
K
N
20
20
18
L
20
19
Detail A
G
11
10
7
2
9
A
1
4
8
12
13
F
5
3
B
C
D
E
6
Detail B

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Engine Mount, Aft - 2651021-5	4	A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	2651031-3, -4	5	A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2651031-5, -6)		A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	2651031-5, -6	6	A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2651031-7, -8)		A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	2651031-7, -8	7	A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2651031-11, -12)		A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	2651031-11, -12	8	A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2651031-13, -14)		A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–
	2651031-13, -14	9	A	0.4997	–	+0.0010/ -0.0000	–	–	–
			B	0.3117	–	+0.0010/ -0.0000	–	–	–

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 2 of 8)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
2	Bolt - 2651027-1	1	A	–	0.4995	–	+0.0000/ -0.0010	–	–
3	Bolt - NAS335CP23	1	B	–	0.3117	–	+0.0000/ -0.0009	–	–
4	Isolator, Aft - LM833-SA4	1	C	0.3130	–	+0.0000/ -0.0005	–	–	–
			D	0.3125	–	+0.0000/ -0.0005	–	–	–
5	Engine Mount Flange		E	–	–	–	–	–	–
6	Bolt - 2652002-2	10	E	–	0.3115	–	+0.0000/ -0.0005	–	–
	Bolt - 2652002-3	11	E	–	0.3115	–	+0.0000/ -0.0005	–	–
7	Fitting, Aft Eng. Support - 2612056-5, -6	12	F	0.5000	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2612056-7, -8)		F	0.5000	–	+0.0010/ -0.0000	–	–	–
	2612056-7, -8	13	F	0.5000	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2612056-9, -10)		F	0.5000	–	+0.0010/ -0.0000	–	–	–
	2612056-9, -10	14	F	0.5000	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2612056-13, -14)		F	0.5000	–	+0.0010/ -0.0000	–	–	–
	2612056-13, -14	15	F	0.5000	–	+0.0010/ -0.0000	–	–	–
	2612056-17,-18	16	F	0.5000	–	+0.0010/ -0.0000	–	–	–
8	Aft Support Beam Assy.	1	G	0.1895	–	+0.0010/ -0.0000	–	–	–
9	Bolt, Aft Side - HL18-6-5	1	G	–	0.1895	–	+0.0000/ -0.0010	–	–
10	Bolt, Top Aft - HL19-6-5	1	G	–	0.1895	–	+0.0000/ -0.0010	–	–
11	Bolt, Top Fwd - HL18-6-4	1	G	–	0.1895	–	+0.0000/ -0.0010	–	–
12	Bolt, Fwd Side - HL18-6-6	1	G	–	0.1895	–	+0.0000/ -0.0010	–	–

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 3 of 8)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
13	Bolt, Bottom - HL18-6-4	1	G	–	0.1895	–	+0.0000/ -0.0010	–	–
14	Fitting, Fwd Eng. Support 2612042-5,-6	17	H	0.6255	–	+0.0000/ -0.0010	–	–	–
			J	0.3120	–	+0.0010/ -0.0000	–	–	–
	2612042-7,-8	18	H	0.6255	–	+0.0000/ -0.0010	–	–	–
			J	0.3120	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2612042-9,-10)		H	0.6255	–	+0.0000/ -0.0010	–	–	–
			J	0.3120	–	+0.0010/ -0.0000	–	–	–
	2612042-9,-10	19	H	0.6255	–	+0.0000/ -0.0010	–	–	–
			J	0.3120	–	+0.0010/ -0.0000	–	–	–
	(Alt. 2612042-13,-14)		H	0.6255	–	+0.0000/ -0.0010	–	–	–
			J	0.3120	–	+0.0010/ -0.0000	–	–	–
	2612042-13,-14	20	H	0.6255	–	+0.0000/ -0.0010	–	–	–
			J	0.3120	–	+0.0010/ -0.0000	–	–	–
15	Bolt - HL30-10-6	1	J	–	0.3120	–	+0.0005/ -0.0000	–	–
16	Engine Mount, Fwd - 2651011-6	21	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4367	–	+0.0015/ -0.0000	–	–	–
	2651011-8	22	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4367	–	+0.0015/ -0.0000	–	–	–
	2651011-10	23	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4367	–	+0.0015/ -0.0000	–	–	–

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 4 of 8)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
	2651011-12	24	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4367	–	+0.0015/ -0.0000	–	–	–
	2651011-13	25	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4375	–	+0.0015/ -0.0000	–	–	–
	2651011-15	26	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4375	–	+0.0015/ -0.0000	–	–	–
	2651011-18	27	K	0.625	–	+0.0010/ -0.0000	–	–	–
			L	0.4375	–	+0.0015/ -0.0000	–	–	–
	2651034-1	28	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4375	–	+0.0015/ -0.0000	–	–	–
	2651034-3	29	K	0.6245	–	+0.0010/ -0.0000	–	–	–
			L	0.4375	–	+0.0015/ -0.0000	–	–	–
17	Bolt - 2651026-1	30	K	–	0.6240	–	+0.0000/ -0.0010	–	–
	2651026-3	31	K	–	0.6240	–	+0.0000/ -0.0010	–	–
	2651026-4	32	K	–	0.6240	–	+0.0000/ -0.0010	–	–
18	Bolt – NAS1307-3H	1	L, M	–	0.4370	–	+0.0000/ -0.0010	–	–
19	Mount Assy. – LM-833-SA5	1	M	0.4375	–	±0.0010	–	–	–
			N	0.3935	–	+0.0000/ -0.0005	–	–	–
20	Bolt – 80917-6-10	1	N	–	0.3882	–	+0.0000/ -0.0002	–	–

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 5 of 8)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Engine Mount, Aft -			
	2651021-5	4	A	Replace worn part.
			B	Replace worn part.
	2651031-3, -4	5	A	Replace worn part.
			B	Replace worn part.
	(Alt. 2651031-5, -6)		A	Replace worn part.
			B	Replace worn part.
	2651031-5, -6	6	A	Replace worn part.
			B	Replace worn part.
	(Alt. 2651031-7, -8)		A	Replace worn part.
			B	Replace worn part.
	2651031-7, -8	7	A	Replace worn part.
			B	Replace worn part.
	(Alt. 2651031-11, -12)		A	Replace worn part.
			B	Replace worn part.
	2651031-11, -12	8	A	Replace worn part.
			B	Replace worn part.
	(Alt. 2651031-13, -14)		A	Replace worn part.
			B	Replace worn part.
	2651031-13, -14	9	A	Replace worn part.
			B	Replace worn part.
2	Bolt - 2651027-1	1	A	Replace worn part.
3	Bolt - NAS335CP23	1	B	Replace worn part.
4	Isolator, Aft - LM833-SA4	1	C, D	Replace worn part. (Refer to applicable basic Learjet Maintenance Manual for complete inspection requirements.)
5	Engine Mount Flange	1	E	
6	Bolt - 2652002-2	10	E	Replace worn part.
	2652002-3	11	E	Replace worn part.
7	Fitting, Aft Eng. Support -			
	2612056-5, -6	12	F	Replace worn part.
	(Alt. 2612056-7, -8)		F	Replace worn part.
	2612056-7, -8	13	F	Replace worn part.
	(Alt. 2612056-9, -10)		F	Replace worn part.
	2612056-9, -10	14	F	Replace worn part.
	(Alt. 2612056-13, -14)		F	Replace worn part.
	2612056-13, -14	15	F	Replace worn part.
	2612056-17, -18	16	F	Replace worn part.
8	Aft Support Beam Assy.	1	G	Refer to Chapter 53.
9	Bolt, Aft Side - HL18-6-5	1	G	Replace worn part. Install oversized fastener if hole "G" is worn past tolerance. (Refer to 51-70-00.)

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 6 of 8)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
10	Bolt, Top Aft - HL19-6-5	1	G	Replace worn part. Install oversized fastener if hole "G" is worn past tolerance. (Refer to 51-70-00.)
11	Bolt, Top Fwd - HL18-6-4	1	G	Replace worn part. Install oversized fastener if hole "G" is worn past tolerance. (Refer to 51-70-00.)
12	Bolt, Fwd Side - HL18-6-6	1	G	Replace worn part. Install oversized fastener if hole "G" is worn past tolerance. (Refer to 51-70-00.)
13	Bolt, Bottom - HL18-6-4	1	G	Replace worn part. Install oversized fastener if hole "G" is worn past tolerance. (Refer to 51-70-00.)
14	Fitting, Fwd Eng. Support -			
	2612042-5, -6	17	H, J	Replace worn part.
	2612042-7, -8	18	H, J	Replace worn part.
	(Alt. 2612042-9, -10)		H, J	Replace worn part.
	2612042-9, -10	19	H, J	Replace worn part.
	(Alt. 2612042-13, -14)		H, J	Replace worn part.
	2612042-13, -14	20	H, J	Replace worn part.
15	Bolt - HL30-10-6	1	J	Replace worn part. Install oversized fastener if hole "J" is worn past tolerance. (Refer to 51-70-00.)
16	Engine Mount, Fwd -			
	2651011-6	21	K, L	Replace worn part.
	2651011-8	22	K, L	Replace worn part.
	2651011-10	23	K, L	Replace worn part.
	2651011-12	24	K,L	Replace worn part.
	2651011-13	25	K, L	Replace worn part.
	2651011-15	26	K, L	Replace worn part.
	2651011-18	27	K, L	Replace worn part.
	2651034-1	28	K, L	Replace worn part.
	2651034-3	29	K, L	Replace worn part.
17	Bolt - 2651026-1	30	K	Replace worn part.
	2651026-3	31	K	Replace worn part.
	2651026-4	32	K	Replace worn part.
18	Bolt - NAS1307-3H	1	L	Replacae worn part.
19	Mount Assy. - LM-833-SA5	1	M, N	Replace worn part. (Refer to Chapter 71 of basic Learjet Maintenance Manual for complete inspection requirements.)
20	Bolt - 6600187-4	1	N	Replace worn part.

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 7 of 8)

CODES	EFFECTIVITIES
1	31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	Deleted
3	Deleted
4	35-001 thru 35-027, 35-029 thru 35-032, 35-035; 36-001 thru 36-013, 36-015, 36-016
5	35-028, 35-033, 35-034, 35-036 thru 35-052; 36-014 and 36-017
6	35-053 thru 35-499, 35-501 thru 35-503, 35-506 thru 35-508; 36-018 thru 36-053 and Prior Aircraft Equipped With 2651031-5, -6 Aft Engine Mount
7	35-500, 35-504, 35-505, 35-509 thru 35-654; 36-054 thru 36-059, 36-062, 36-063; 31-001 thru 31-013; and Prior Aircraft Equipped With 2651031-7, -8 Aft Engine Mount
8	31-014 thru 31-048; 35-655 thru 35-674; 36-060, 36-061 and Prior Aircraft Equipped With 2651031-11, -12 Aft Engine Mount
9	31-049 and Subsequent; 35-675 and Subsequent; 36-064 and Subsequent and Prior Aircraft Equipped With 2651031-13, -14 Aft Engine Mount
10	35-001 thru 35-020; 36-001 thru 36-013
11	35-021 and Subsequent; 35-014 and Subsequent; 31-001 and Subsequent
12	35-001 thru 35-141; 36-001 thru 36-034
13	35-142 thru 35-295; 36-035 thru 36-044 and Prior Aircraft Equipped With 2612056-7, -8 Fitting
14	35-296 thru 35-420; 36-045 thru 36-047 and Prior Aircraft Equipped With 2612056-9, -10 Fitting
15	35-421 thru 35-450 and Prior Aircraft Equipped With 2612056-13,-14 Fitting; 36-048 thru 36-051and Prior Aircraft Equipped With 2612056-13,-14 Fitting
16	35-451 and Subsequent; 36-052 and Subsequent and Prior Aircraft Equipped With 2612056-17, -18 Fitting
17	35-001 thru 35-035; 36-001 thru 36-013, 36-015, 36-016
18	35-036 thru 35-178; 36-017
19	35-179 thru 35-307; 36-039 thru 36-044 and Prior Aircraft Equipped With 2612042-9, -10 Fitting
20	35-308 and Subsequent; 36-045 and Subsequent and Prior Aircraft Equipped With 2612042-13, -14 Fitting
21	35-001, 35-002; 36-001
22	35-003 thru 35-018; 36-002 thru 36-008
23	35-019 thru 35-022; 36-009 thru 36-013
24	35-023 thru 35-026; 36-014 thru 36-016
25	35-027 thru 35-340; 36-017 thru 36-045 and Prior Aircraft Equipped With 2651011-13 Engine Mount
26	35-355 thru 35-522, 35-529, 35-530, 35-531, 35-589; 36-046 thru 36-053
27	35-340 thru 35-354 and Prior Aircraft Equipped With 2651011-18 Engine Mount
28	35-523 thru 35-654; 36-054 thru 36-059, 36-062, 36-063; 31-001 thru 31-013
29	31-014 and Subsequent; 35-655 and Subsequent; 36-060, 36-061, 36-064 and Subsequent and Prior Aircraft Equipped With 2651034-3 Engine Mount
30	31-001 thru 31-007; 35-001 thru 35-642; 36-001 thru 36-057
31	31-008; 35-643 thru 35-647; 36-058 and Prior Aircraft Equipped With 2651026-3 Bolt
32	31-009 and Subsequent and Prior Aircraft Modified Per SB 31-71-1 "Powerplant - Replacement of Forward Engine Mount Bolts"; 35-648 and Subsequent and Prior Aircraft Modified Per SB 35/36-71-5 "Powerplant - Replacement of Forward Engine Mount Bolts" Except Aircraft 35-110; 36-059 and Subsequent and Prior Aircraft Modified Per SB 35/36-71-5 "Powerplant - Replacement of Forward Engine Mount Bolts"

Engine Mount Fittings - Allowable Wear and Repair Data
Figure 2 (Sheet 8 of 8)

ENGINE MOUNT FITTINGS - REPAIR

1. **General**
   A. It is the responsibility of the aircraft owner/maintenance facility to determine qualifications of maintenance personnel performing repair procedures. As always, a clean environment and good general shop practices shall be exercised any time repairs are performed on the aircraft.
   B. Prior to, and after performing, any repairs on the Engine Mount Fittings, ensure serviceability and reliability of part. If serviceability and/or reliability of any part or repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information.
   C. Repairs must be equal to, or greater in strength, than the original structure. Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   D. Repairs for structure not included in this section does not necessarily indicate that the structure involved is non-repairable, but that the application of a typical repair procedure to theoretical damage has not yet been developed.
   E. For repair procedures pertaining to items not covered in this section, refer to that items respective chapter.
   F. Following any repair or maintenance procedures on the aircraft structure/components, update all aircraft log books as required.
   G. Following any repair or maintenance procedures on the aircraft structure/components, ensure inspection records pertaining to any specific repair-related procedure are identified, properly documented and closely adhered too.
   H. All parts fabricated by the repair facility shall be identified for future reference. Marking of parts shall be accomplished in a manner which does not affect the serviceability and reliability of the part.

2. **Limitations and Inspections**
   A. Limitations
      (1) Learjet engineering approved repairs to engine mount fittings are limited to those items/areas as outlined in step 4., Repair Procedures.
      (2) Limitations applied to repairs in this section must be followed unless Learjet engineering authority to the contrary is given.
      (3) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. Cracks in any fitting or forging are not allowed. Fittings or forgings with bushing shall be repaired.

3. **Materials and Processes**
   A. Materials
      (1) Repair materials and required treatments or processes will be listed in the repair procedure. Material or treatment variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   B. Processes
      (1) Refer to the appropriate sections, in this chapter, for chemical process and treatment specifications.

4. Repair Procedures

NOTE: All dimensions are in inches unless otherwise specified.

A. Forward Engine Mount (*P/Ns 2651034-1 thru -3*) and Support Fitting (*P/Ns 2612042-5 thru -14*) Repair (See Figure 201.)

WARNING: THE FOLLOWING REPAIR PROCEDURE EMPLOYS THE USE OF A DRY ICE-ALCOHOL MIXTURE. WHEN WORKING WITH DRY ICE-ALCOHOL MIXTURE ENSURE ADEQUATE SAFETY PRECAUTIONS AND PROCEDURES ARE CLOSELY ADHERED TO.

NOTE:
- Repair procedures for both LH and RH engine mount and support fittings are identical unless otherwise specified.
- Bushings may be installed only in holes that are out of tolerance. Care must be taken to ensure that bushed hole(s) is line reamed to match other existing bolt holes.
- Due to time constraints contained in the following procedure, it is recommended that the procedure be thoroughly read and understood prior to performing the following task.

(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Countersink	9100392	Learjet Inc.	Repair engine mount
Dry Ice & Alcohol		Commercially Available	Cold soak bushings

(2) Parts and Materials

NAME	PART NUMBER	MANUFACTURER	USE
Bushing (4 ea.)	12135-060-1	Learjet Inc.	Repair engine mount
Bushing (4 ea.)	12135-060-2	Learjet Inc.	Repair fitting

(3) Tolerances

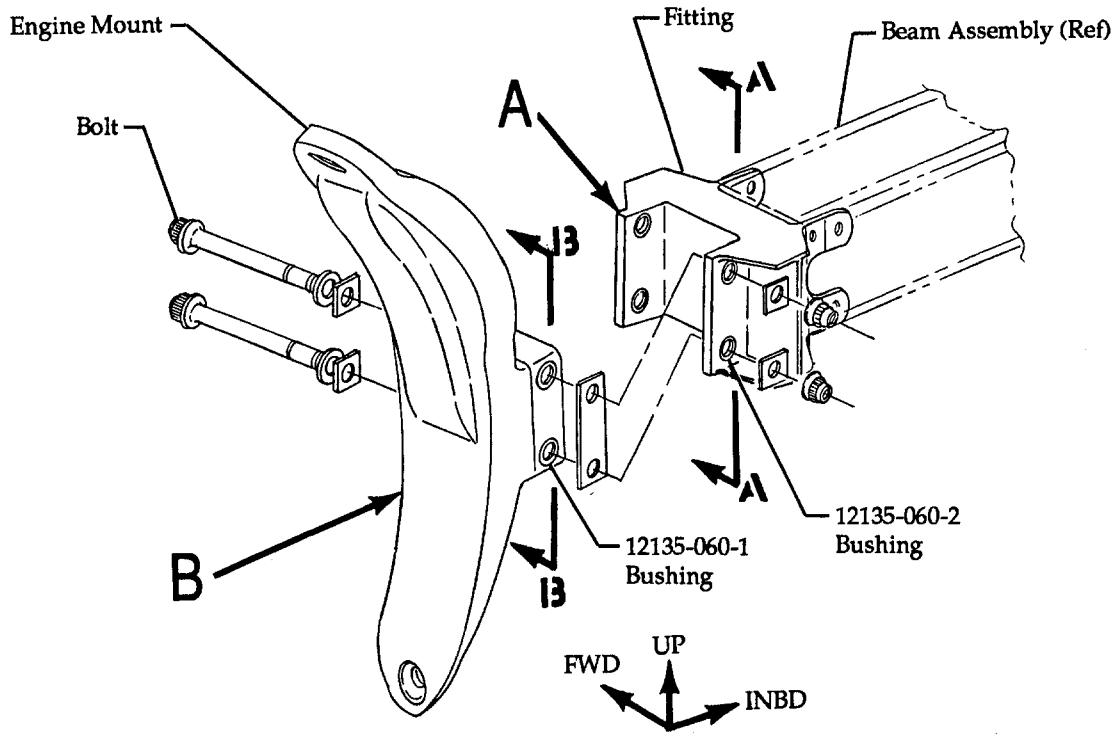
NAME	TOLERANCE
Engine Mount Bolt Hole	0.6255 to 0.6245
Fitting Bolt Hole	0.6255 to 0.6245
Bolt (Ref)	0.6240 to 0.6230

(4) Repair Procedure: (See Figure 201.)
   (a) Remove engine from aircraft. (Refer to applicable Learjet Maintenance Manual.)
   (b) Remove attaching parts securing engine mount to fitting.
   (c) Modify engine mount (*P/Ns 2651034-1 thru -3*) as follows:
      1) Measure outside diameter of new bushing (*P/N 12135-060-1*).
      2) Machine existing hole in engine mount to within 0.0002 to 0.0004 inch interference fit with outside diameter of bushing.
      3) Countersink hole in engine mount using a 45° countersink to a depth of 0.060 inch by 0.870 inch diameter. (See Detail D.)
      4) Clean engine mount.
      5) Inspect machined area of engine mount using Eddy current method for possible cracks.
      6) Cold soak bushings by placing in a mixture of alcohol and dry ice for a minimum of 20 minutes.
      7) Apply epoxy primer to four (4) holes in engine mount just prior to installing new bushings.
      8) Remove bushing from alcohol and dry ice mixture and install in engine mount within 14 seconds.
      9) Allow engine mount to reach room temperature.
      10) Measure diameter of upper engine mount bolt.
      11) Using dimension determined in step 9), line ream opposing bushings.
      12) Line ream inside diameter of upper bushings to provide a 0.001 inch maximum clearance for engine mount bolt.
   (d) Modify support fitting (*P/Ns 2612042-5 thru -14*) as follows:
      1) Measure outside diameter of new bushing (*P/N 12135-060-2*).
      2) Machine existing hole in fitting to within 0.0002 to 0.0004 inch interference fit with outside diameter of bushing.
      3) Clean fitting.
      4) Inspect machined area of fitting using Eddy current method for possible cracks.
      5) Cold soak bushings by placing in a mixture of alcohol and dry ice for a minimum of 20 minutes.
      6) Apply epoxy primer to four (4) holes in engine mount just prior to installing new bushings.
      7) Remove bushing from alcohol and dry ice mixture and install in fitting within 14 seconds.

8) Allow fitting to reach room temperature.
9) Measure diameter of upper engine mount bolt.
10) Using dimension determined in step 9), line ream opposing bushings.
11) Line ream inside diameter of upper bushings to provide a 0.001 inch maximum clearance for engine mount bolt.

(e) Install engine mount in fitting using only upper bolt.
(f) Align lower bolt holes.
(g) Measure diameter of lower engine mount bolt.
(h) Line ream inside diameter of lower bushings of engine mount and fitting to provide a 0.001 inch maximum clearance for engine mount bolt.
(i) Install lower engine mount bolt.
(j) Install engine mount in aircraft. (Refer to applicable Learjet Maintenance Manual.).
(k) Update all aircraft log books to indicate that *Engine Support Modification Installation #12135-059-1 (LH)/-2 (RH)* has been incorporated.
(l) Restore aircraft to normal.

ENGINE MOUNT FITTINGS - REPAIR



NOTES:

1> Bushing to be flush on this side when installed.

2> Permissible to radius bushing 45° flange edge to prevent damage on assembly to fitting.

3> Permissible to radius bushing edge to prevent damage on assembly to engine mount.

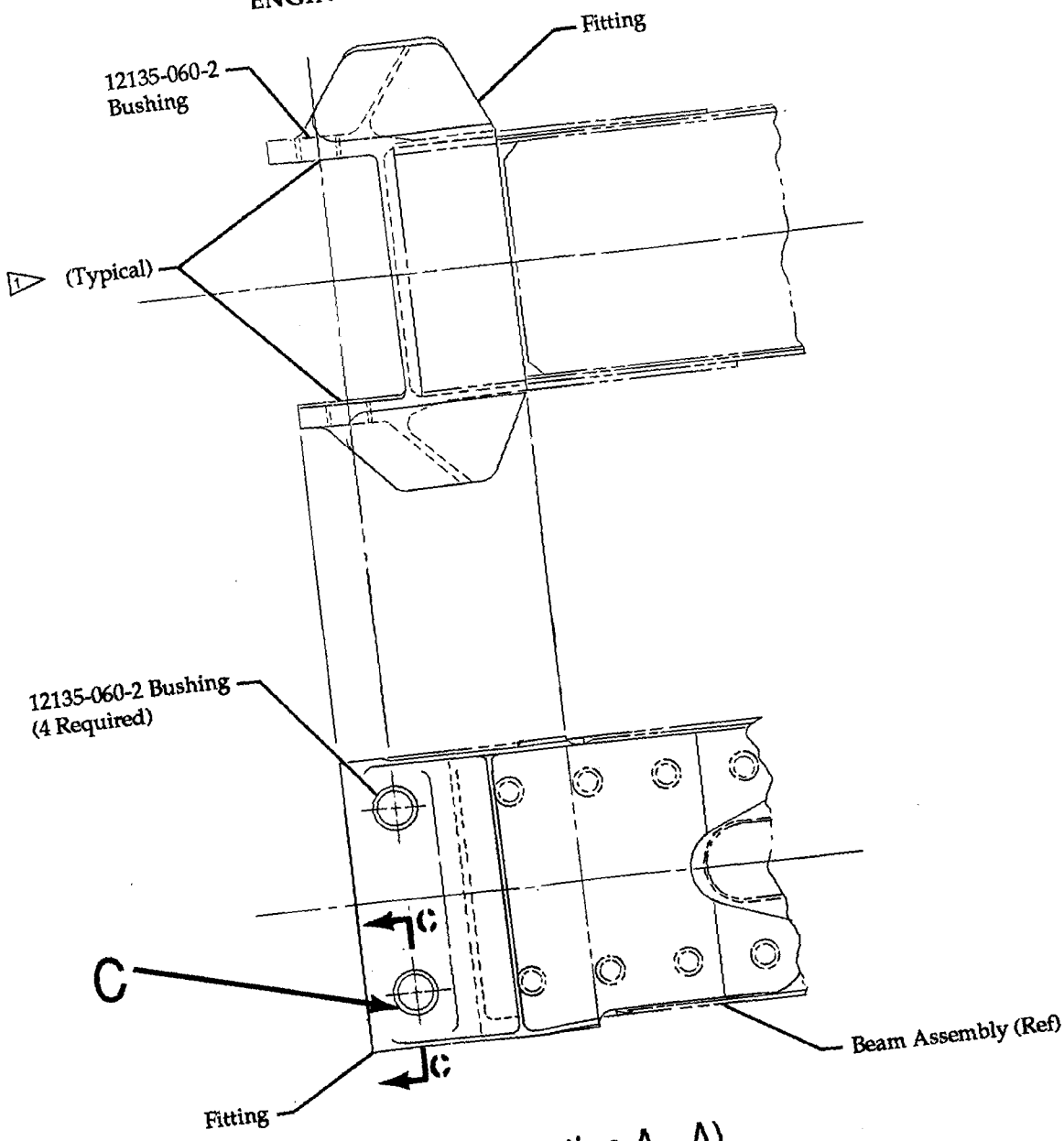
4> Dimension of hole to be 0.0002 to 0.0004 inch interference fit (4 places).

(LH SHOWN, RH OPPOSITE)

Repro

Engine Mount and Fitting - Repair
Figure 201 (Sheet 1 of 3)

ENGINE MOUNT FITTINGS - REPAIR



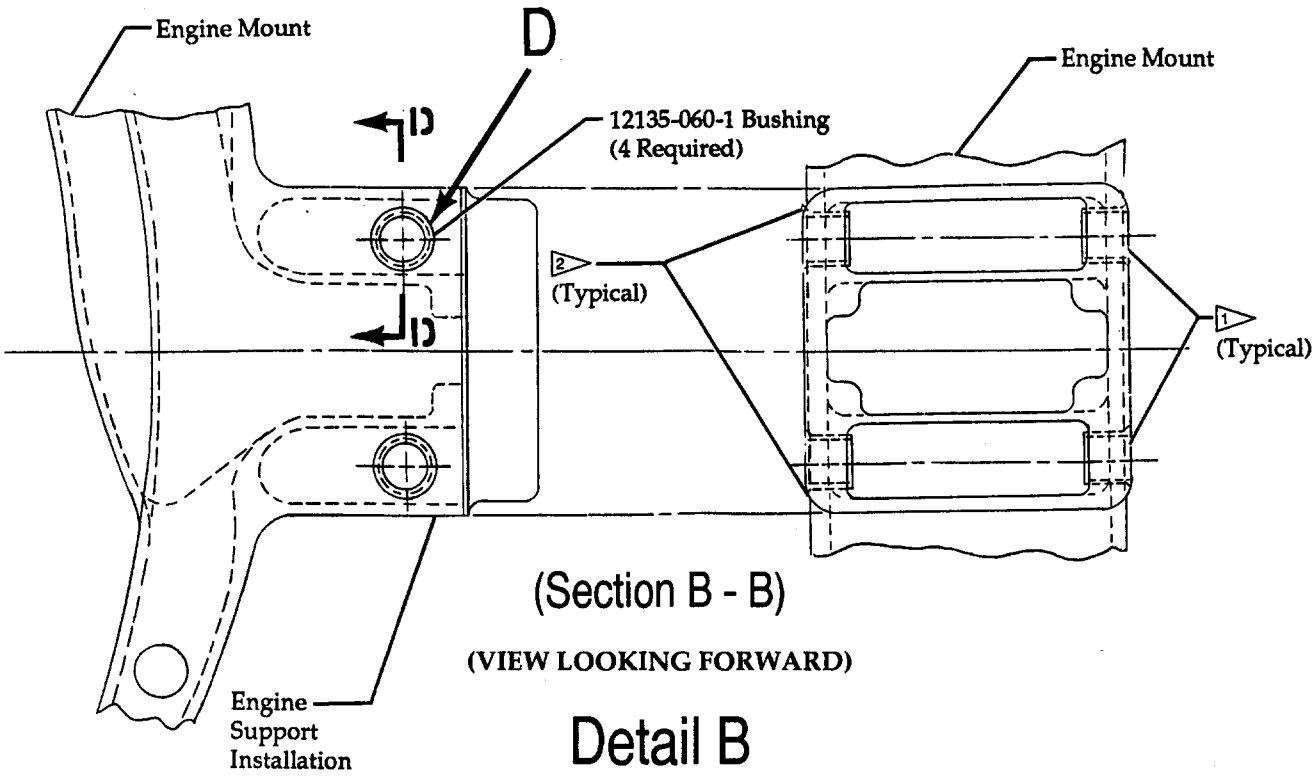
(Section A - A)

(VIEW LOOKING FORWARD)

Detail A

Engine Mount and Fitting - Repair
Figure 201 (Sheet 2 of 3)

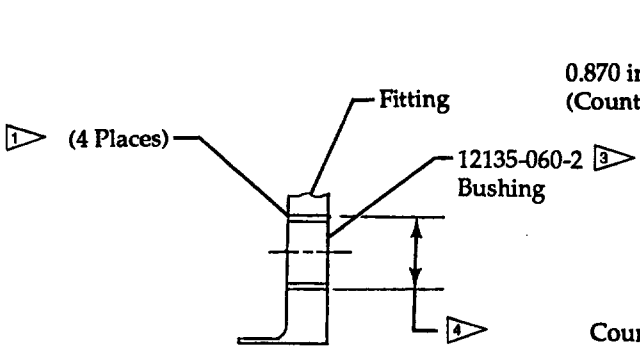
ENGINE MOUNT FITTINGS - REPAIR



(Section B - B)

(VIEW LOOKING FORWARD)

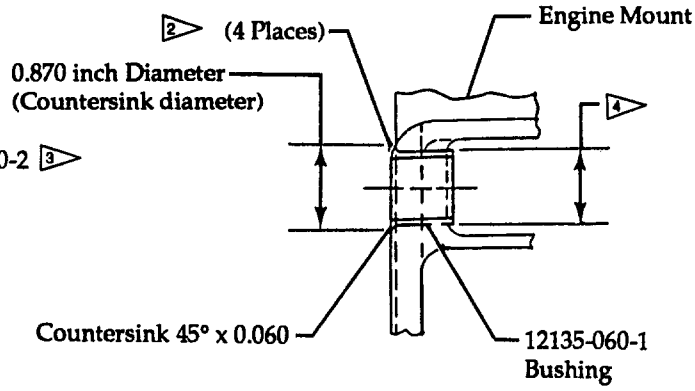
Detail B



(Section C - C)

(TYPICAL OF 4 LOCATIONS)

Detail C



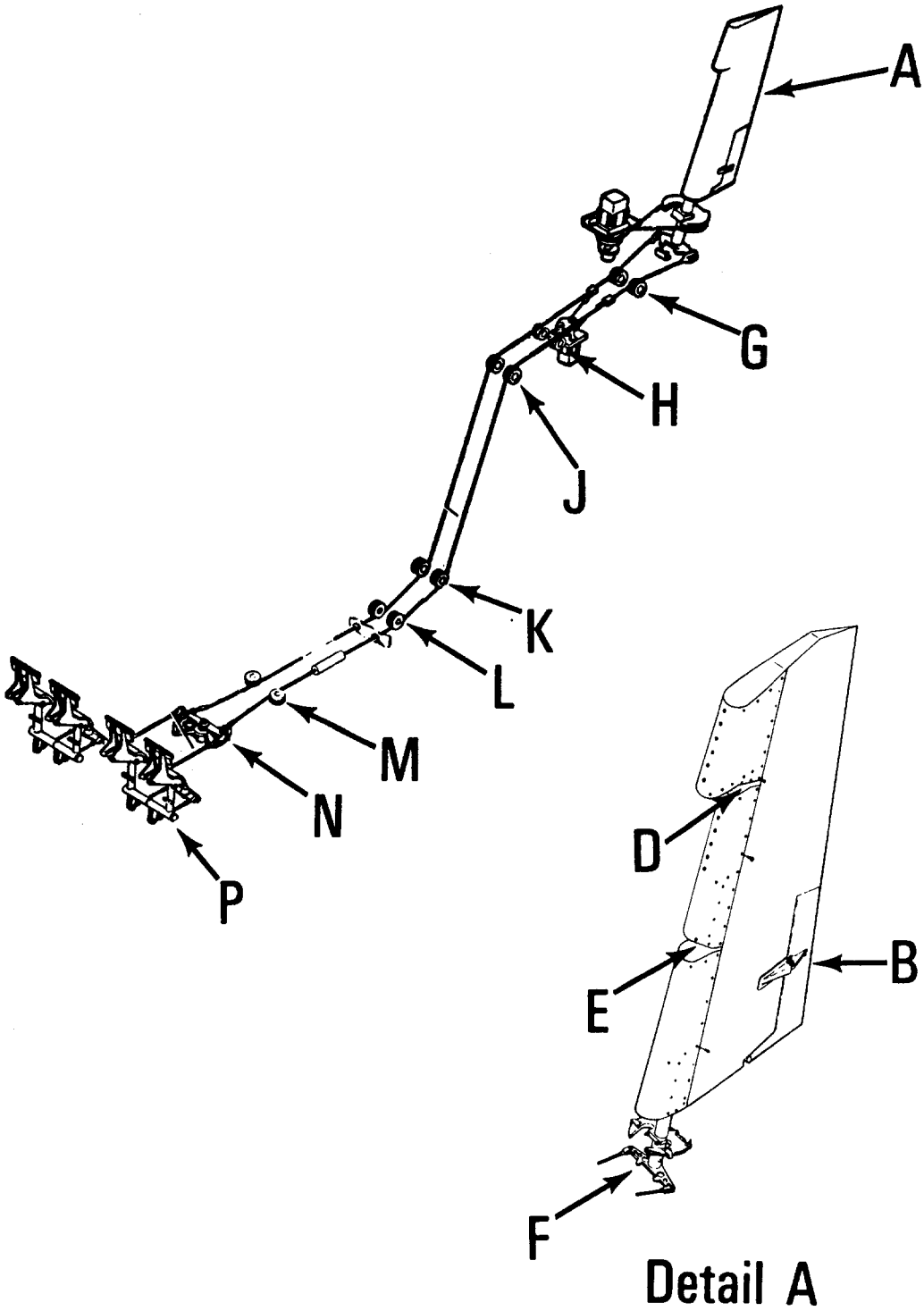
(Section D - D)

(TYPICAL OF 4 LOCATIONS)

Detail D

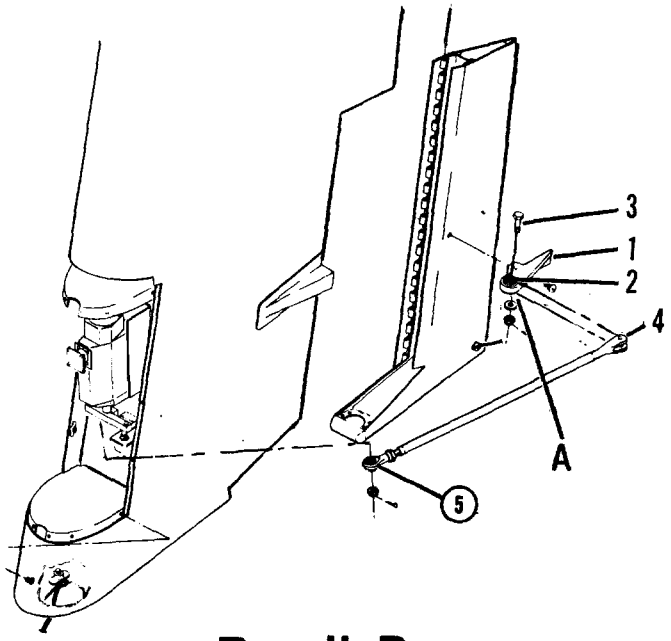
Repro

Engine Mount and Fitting - Repair
Figure 201 (Sheet 3 of 3)

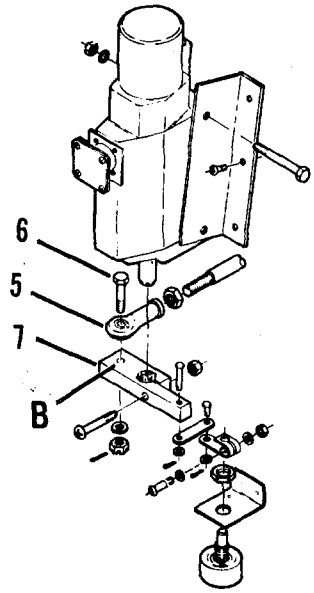


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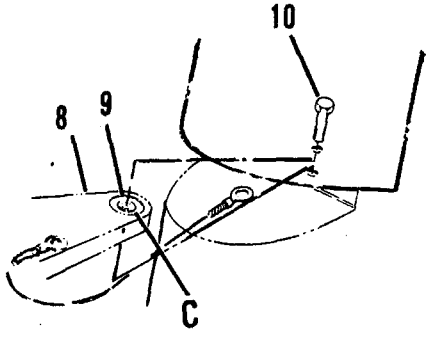
Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 16)



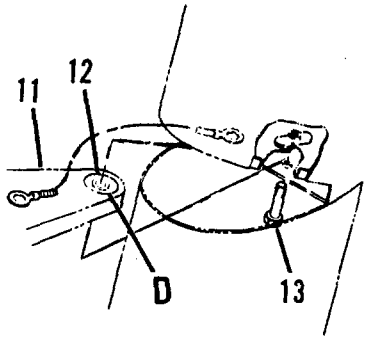
Detail B



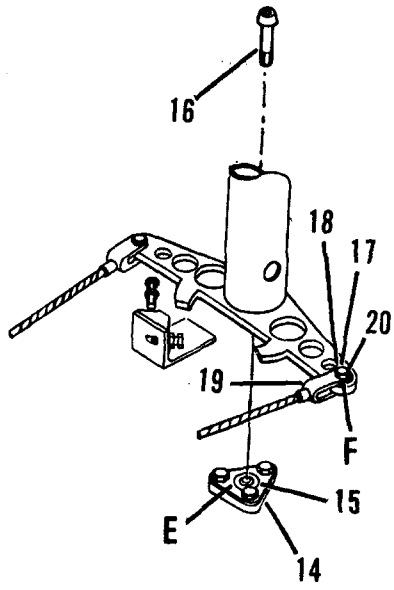
Detail C



Detail D

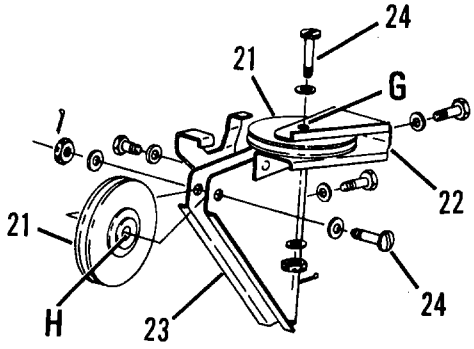


Detail E

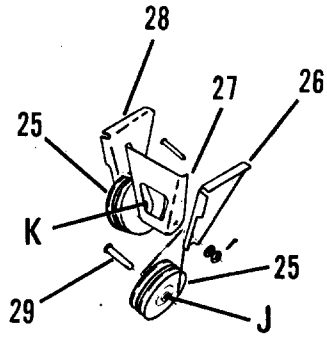


Detail F

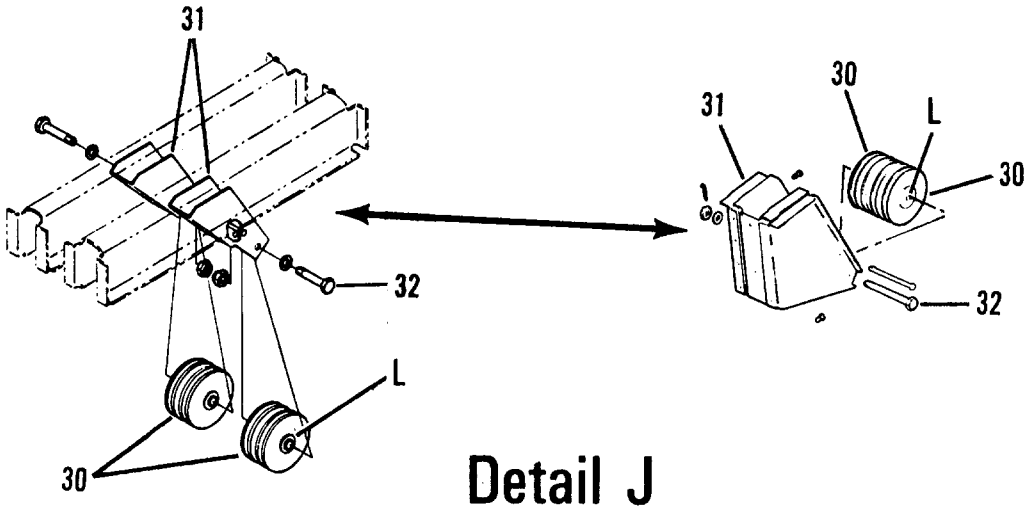
Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 16)



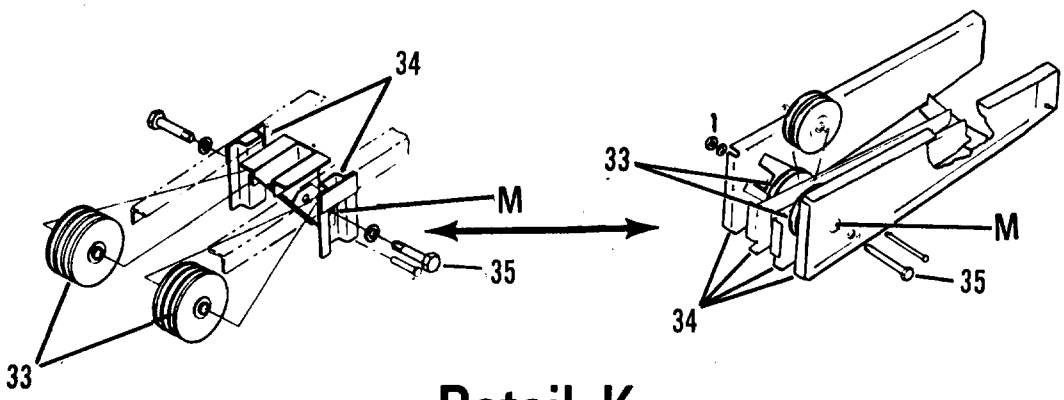
Detail G



Detail H



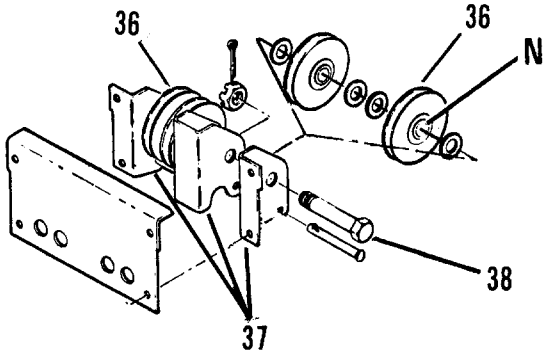
Detail J



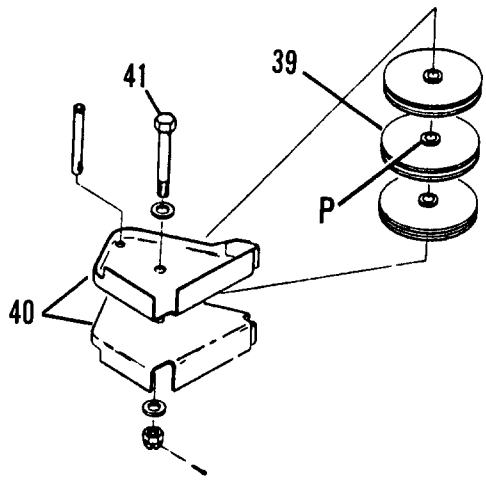
Detail K

8-22C-1
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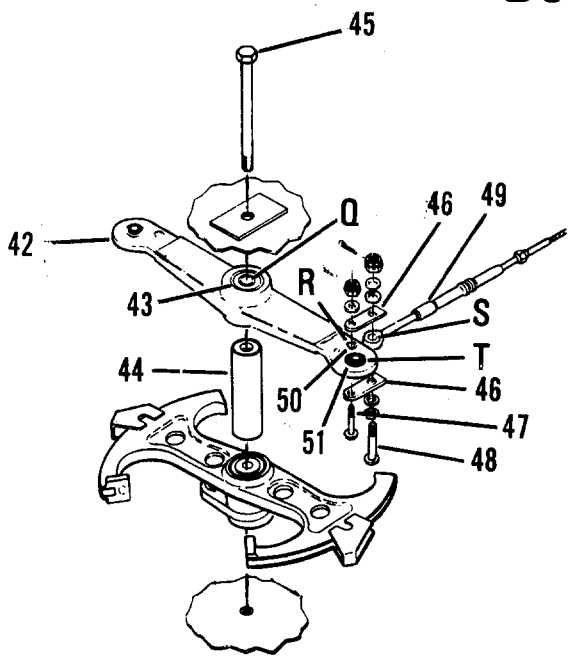
Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 16)



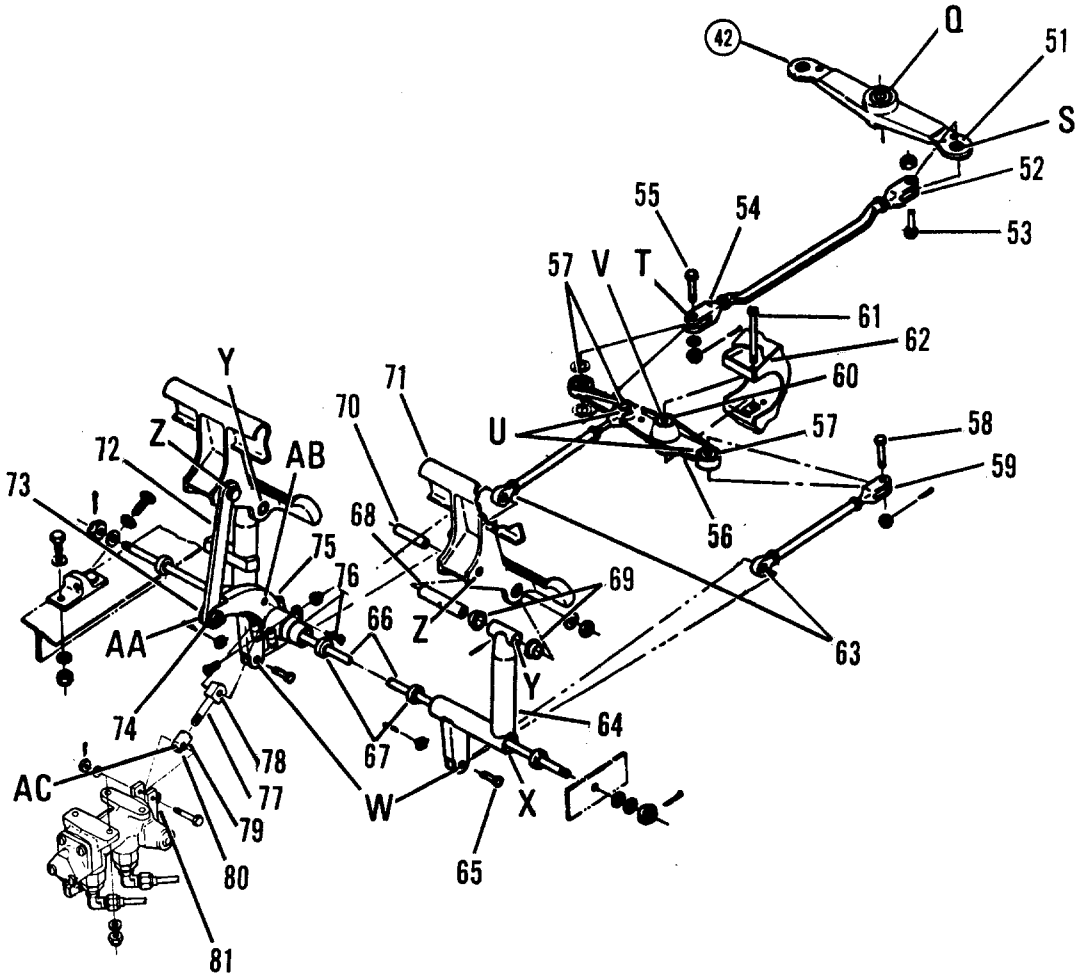
Detail L



Detail M



Detail N


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Detail P

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
1	Horn Assy. - 2333009-6	1	A	0.6562	–	+0.0040/ -0.0000	-	–	–
2	Bearing - MS21233-4	1	A	0.2500	0.6562	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
3	Bolt - NAS464P4-8	1	A	–	0.2492	–	+0.0000/ -0.0009	–	–
4	Clevis, Rod End - 2433003-2	1	A	0.2492	–	+0.0010/ -0.0000	–	–	–
5	Bearing, Rod End - HFV-4	1	B	–	–	–	–	–	–
6	Bolt - NAS464P4-13 NAS464P4-14	2	B	–	0.2492	–	+0.0000/ -0.0009		
7	Actuator Arm - 2333008-3, -4, -6, -7	1	B	0.2500	–	+0.0050/ -0.0010	–	–	–
8	Hinge Assy. - 2331030-10, -12	1	C	0.7488	–	+0.0005/ -0.0000	–	–	–
9	Bearing - AN201KP4A	1	C	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
10	Bolt - AN4H11A	1	C	–	0.2490	–	+0.000/ -0.0030	–	–
11	Hinge Assy. - 2331031-8, -10, -11, -14	1	D	0.7488	–	+0.0005/ -0.0000	–	–	–
12	Bearing - AN201KP4A	1	D	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
13	Bolt - AN4H11A	1	D	–	0.2490		0.0000/ -0.0030	–	–
14	Bearing Block Assy. – 2312040-7	1	E	0.8998	–	+0.0008/ -0.0000	–	–	–
15	Bearing - BR-4 (Alt DAS4-14A)	1 1	E E	–	–	–	–	–	–
16	Bolt - NAS144A23	1	E	–	0.2490	–	+0.0000/ -0.0030	–	–
17	Torque Tube Assy. - 2433002-1	1	F	0.3755	–	+0.0000/ -0.0005	–	–	–
18	Bushing - DBS-4-030 (Alt AJ04C-125)	1 1	F F	–	–	–	–	–	–
19	Fork End Terminal - MS20667-6	1	F	0.3130	–	+0.0020/ -0.0000	–	–	–

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
20	Bolt - NAS464-4-8	1	F	–	0.2492	–	+0.0000/ -0.0009	–	–
21	Pulley - MS20220A2	1	G, H	0.3125	3.0000	+0.0005/	+0.0050/ -0.0000	–	–
22	Bracket, Upper LH - 2331510-21, -22, -23, -24, -53, -54	2	G	0.3120	–	±0.0100	–	–	–
	2615116-1, -5	3	G	0.3120	–	±0.0100	–	–	–
23	Bracket, Lower LH - 2615117-1, -5	3	H	0.3120	–	±0.0100	–	–	–
24	Bolt - AN25-12, -17, -22	1	G, H	–	0.3110	–	+0.0000/ -0.0020	–	–
25	Pulley - MS20220A2 MS20220-2	1	J, K	0.3125	3.0000	+0.0005/	+0.0050/ -0.0000	–	–
26	Bracket - 2512500-23	25	J	0.3120	–	+0.0060/ -0.0010	–	–	–
	2615113-1	26	J	0.3120	–	+0.0100/ -0.0000	–	–	–
27	Bracket - 2512500-22	25	J	0.3120	–	+0.0060/ -0.0010	–	–	–
	2615112-2	26	J, K	0.3120	–	+0.0100/ -0.0000	–	–	–
28	Bracket - 2512500-24	25	J	0.3120	–	+0.0060/ -0.0010	–	–	–
	2615119-1	26	J	0.3120	–	+0.0100/ -0.0000	–	–	–
29	Bolt - AN25-27	1	J, K	–	0.3110	–	+0.0000/ -0.0020	–	–
30	Pulley - MS20220A2 MS20220-2	1	L	0.3125	3.0000	+0.0005/	+0.0050/ -0.0000	–	–
31	Bracket - 2512500-5, -6, -7, -8, -11, -12, -42, -44, -55, -56, -57, -58	1	L	0.3120	–	+0.0060/ +0.0010	–	–	–
32	Bolt - NAS464P5-44 NAS464P5-23	1	L	–	0.3117	–	+0.0000/ -0.0009	–	–
33	Pulley - MS20220A2	1	M	0.315	3.0000	+0.0005/	+0.0050/ -0.0000	–	–
34	Bracket - 2512500-27, -28	4	M	0.3120	–	+0.0060/ -0.0001	–	–	–
	2488510-4, -5	5	M	0.3120	–	+0.0060/ -0.0001	–	–	–
	2488710-4, -5	6	M	0.3120	–	+0.0060/ -0.0001	–	–	–
	2512500-6, -17, -18, -33, -34, -39, -40, -47	7	M	0.3120	–	+0.0060/ -0.0001	–	–	–

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
35	Bolt - NAS464P5-44 NAS464P5-23	1	M	–	0.3117	–	+0.0000/ -0.0009	–	–
36	Pulley - MS20220A1	1	N	0.3125	1.7500	+0.0005/	+0.0050 -0.0000	–	–
37	Bracket - 2312500-34, -35,	1	N	0.3120	–	+0.0006	–	–	–
	-36	1	N	0.3120	–	-0.0010	–	–	–
38	Bolt - NAS464P5-22	1	N	–	0.3117	–	+0.0000/ -0.0009	–	–
39	Pulley - MS20220-2 MS20220A2	1	P	0.3125	3.0000	+0.0005/	+0.0050 -0.0000	–	–
40	Bracket - 2315120-11, -12, -33, -34, -37, -39, -40, -41	1	P	0.3125	–	+0.0010/ -0.0000	–	–	–
41	Bolt - AN5-24, -25	1	P	–	0.3120	– -0.0030	+0.0000/	–	–
42	Bellcrank - 2315129-4	8	Q	1.3130	–	±0.0010	–	–	–
			R	0.3754	–	+0.0005/ -0.0000	–	–	–
	3115042-1	9	Q	1.3130	–	±0.0010	–	–	–
			R	0.3754	–	+0.0005/ -0.0000	–	–	–
43	Bearing - B-540-ZZ (Alt. B-540-DD)	8	T	0.7488	–	+0.0005/ -0.0000	–	–	–
	MS27646-40	9	T	0.7488	–	+0.0005/ -0.0000	–	–	–
44	Shaft - 2315121-29, -35	1	Q	0.3750	0.8470	+0.0010 -0.0000	+0.0000/ -0.0010	–	–
45	Bolt - NAS1306-60H	1	Q	–	0.3745	–	+0.0000/ -0.0010	–	–
46	Link - 2300003-131	1	R	0.2500	–	±0.0100	–	–	–
			S	0.3120	–	±0.0100	–		
47	Bolt - AN24-12	1	R	–	0.2480	–	+0.0000/ -0.0020	–	–
48	Bolt - AN25-12	1	S	–	0.3110	–	+0.0000/ -0.0020	–	–
49	Turnbuckle Eye - NAS648-46LL	1	S	0.3120	–	+0.0020/ -0.0000	–	–	–
50	Bushing - DBS-4-030	1	R	–	–	–	–	–	–
	(Alt. - AJ04C-125)	1	R	–	–	–	–	–	–
51	Bearing - KS4A	1	S	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	(Alt. - MS27645-4A)	1	S	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
52	Aft Rod End - 2315121-14	23	S	0.2500	–	+0.0010/ -0.0000	–	–	–
	7003100-901	24	S	0.2500	–	+0.0010/ -0.0000	–	–	–
53	Bolt - AN24-15	1	S	–	0.2480	–	+0.0000/ -0.0020	–	–
54	Connecting Rod - 2315121-21	10	T	0.2500	–	+0.0010/ -0.0000	–	–	–
	2415149-4	12	T	0.2500	–	+0.0010/ -0.0000	–	–	–
	3115140V1-1	13	T	0.2500	–	+0.0010/ -0.0000	–	–	–
	3115040-2	14	T	0.2500	–	+0.0010/ -0.0000	–	–	–
55	Bolt - NAS464P4-9	1	T	–	0.2492	–	+0.0000/ -0.0009	–	–
56	Bellcrank - 2315121-1	15	T, U	0.6570	–	+0.0020/ -0.0000	–	–	–
			V	0.7490	–	+0.0005/ -0.0000	–	–	–
	2315138-1, -4, -6, -8	16	T, U	0.6570	–	+0.0020/ -0.0000	–	–	–
			V	0.7490	–	+0.0005/ -0.0000	–	–	–
57	Bearing - LS4	17	T, U	0.2500	0.6562	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	MS21233-4	18	T, U	0.2500	0.6562	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
58	Bolt - NAS464P4-9	1	U	–	0.2492	–	+0.0000/ -0.0009	–	–
59	Rod End - 2315121-14	1	U	0.2500	–	+0.0010/ -0.0000	–	–	–
60	Bearing - AN201KP4A	1	V	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
61	Bolt - NAS1304-32H	1	V	–	0.2495	–	+0.0000/ -0.0010	–	–
62	Bracket - 2315122-1, -7, -8, -17, -18, -117, -118, -122, -133, -149	1	V	0.1890	–	±0.0100	–	–	–

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
63	Bearing Rod End – MS21242-S05	1	W	0.3125	–	+0.0000/ -0.0005	–	–	–
64	Pedal Support – 2315141-17, -18, -29, -30	1	W	0.3130	–	+0.0010/ -0.0000	–	–	–
			X	0.7500	0.8690	+0.0000/ -0.0020	+0.000/ -0.001	–	–
65	Bolt - NAS464P5-9	1	Y	0.5000		+0.0020/ -0.0000	–	–	–
			W	–	0.3117	–	+0.0000/ -0.0009	–	–
66	Support Stud - 2315141-20	1	X	–	0.2470	–	+0.0010/ -0.0000	–	–
67	Bearing - AN201KP4A	1	X	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
68	Sleeve Pin - 2315141-12	1	Y	–	0.4980	–	+0.0000/ -0.0020	–	–
69	Bushing - NAS77-8-25	1	Y	0.5000	0.6265	+0.0015/ -0.0000	+0.0000/ -0.0008	–	–
70	Bushing - NAS75-4-202	1	Y	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
71	Rudder Pedal - 2315141-1, -24, -33	19	Y	0.6250	–	+0.0000/ -0.0020	–	–	–
			Z	0.3750	–	+0.0030/	–	–	–
	2384010-2, -6	20	Y	0.6250	–	+0.0000/ -0.0020	–	–	–
			Z	0.3750	–	+0.0030/	–	–	–
	2415171-1, -9	21	Y	0.6250	–	+0.0000/ -0.0020	–	–	–
			Z	0.3750	–	+0.0030/ -0.0010	–	–	–
	2415175-1	22	Y	0.6250	–	+0.0000/ -0.0020	–	–	–
			Z	0.3750	–	+0.0030/ -0.0010	–	–	–

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
72	Link Assy. - 2315167-22, -29	1	Z	0.6557	–	+0.0020/ -0.0000	–	–	–
			AA	0.6557	–	+0.0020/ -0.0000	–	–	–
73	Bearing - AG4S	1	AA	–	–	–	–	–	–
	(Alt. - ABG-4)	1	AA	–	–	–	–	–	–
	(Alt. - LHA-4)	1	AA	–	–	–	–	–	–
74	Bolt - NAS464P4-9	1	AA	–	0.2492	–	+0.0000/ -0.0009	–	–
75	Arm Assy. - 2315166-10, -11, -15, -16, -18, -19	1	AA	0.2500	–	+0.0050/ -0.0010	–	–	–
			X	0.9390	–	+0.0005/ -0.0000	–	–	–
			AB	0.1890	–	+0.0050/ -0.0010	–	–	–
76	Bolt - NAS464P3-9	1	AB	–	0.1894	–	+0.0000/ -0.0009	–	–
77	Link - 2315167-14, -27	1	AB	0.3120	–	±0.0010	–		
78	Bushing - NAS75-3-011	1	AB	0.1900	0.3136	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
79	Nut Assy. - 2315167-16	1	AC	0.3140	–	+0.0010/ -0.0000	–	–	–
80	Bushing - NAS75-3-004	1	AC	0.1900	0.3136	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
81	Lever - 2315167-28	1	AC	0.1910	–	+0.0050/ -0.0010	–	–	–

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 16)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Horn Assy. - 2333009-6	1	A	Replace worn part.
2	Bearing - MS21233-4	1	A	Replace worn part. Install new bearing with Loctite. (Refer to 51-70-00.)
3	Bolt - NAS464P4-8	1	A	Replace worn part.
4	Clevis, Rod End - 2433003-2	1	A	Replace worn part.
5	Bearing, Rod End - HFV-4	1	B	Replace worn part.
6	Bolt - NAS464P4-13 NAS464P4-14	2	B	Replace worn part.
7	Actuator Arm - 2333008-3, -4 , -6, -7	1	B	Replace worn part.
8	Hinge Assy. - 2331030-10, -12	1	C	Replace worn part.
9	Bearing - AN201KP4A	1	C	Replace worn part. Stake new bearing in place or secure with Loctite. (Refer to 51-70-00.)
10	Bolt - AN4H11A	1	C	Replace worn part.
11	Hinge Assy. - 2331031-8, -10, -11, -14	1	D	Replace worn part.
12	Bearing - AN201KP4A	1	D	Replace worn part. Install new bearing and stake in place or secure with Loctite. (Refer to 51-70-00.)
13	Bolt - AN4H11A	1	D	Replace worn part.
14	Bearing Block Assy. - 2312040-7	1	E	Replace worn part.
15	Bearing - BR-4		E	Replace worn part. Install new bearing in wet primer.
	(Alt DAS4-14A)	1	E	Replace worn part. Install new bearing in wet primer.
16	Bolt - NAS144A23	1	E	Replace worn part.
17	Torque Tube Assy. - 2433002-1	1	F	
18	Bushing - DBS-4-030	1	F	Replace worn part.
	(Alt AJ04C-125)	1	F	
19	Fork End Terminal - MS20667-6	1	F	Replace worn part.
20	Bolt - NAS464-4-8	1	F	Replace worn part.
21	Pulley - MS20220A2	1	G, H	Replace worn part.
22	Bracket, Upper LH - 2331510-21, -22, -23, -24, -53, -54	2	G	Replace worn part.
	2615116-1, -5	3	G	Replace worn part.
23	Bracket, Lower LH - 2615117-1, -5	3	H	Replace worn part.
24	Bolt - AN25-12, -17, -22	1	G, H	Replace worn part.
25	Pulley - MS20220A2 MS20220-2	1	J, K	Replace worn part.
26	Bracket - 2512500-23	25	J	Replace worn part.
	2615113-1	26	J	Replace worn part.
27	Bracket - 2512500-22	25	J, K	Replace worn part.
	2615112-2	26	J, K	Replace worn part.

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 16)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
28	Bracket - 2512500-24	25	K	Replace worn part.
	2615119-1	26	K	Replace worn part.
29	Bolt - AN25-27	1	J, K	Replace worn part.
30	Pulley - MS20220A2 MS20220-2	1	L	Replace worn part.
31	Bracket - 2512500-6, -7, -8, -11, -12, -42, -44, -55, -56, -57, -58	1	L	Replace worn part.
32	Bolt - NAS464P5-44 NAS464P5-23	1	L	Replace worn part.
33	Pulley - MS20220A2	1	M	Replace worn part.
34	Bracket - 2512500-27, -28	4	M	Replace worn part.
	2488510-4, -5	5	M	Replace worn part.
	2488710-4, -5	6	M	Replace worn part.
	2512500-6, -17, -18, -33, -34, -39, -40, -47	7	M	Replace worn part.
35	Bolt - NAS464P5-44 NAS464P5-23	1	M	Replace worn part.
36	Pulley - MS20220A1	1	N	Replace worn part.
37	Bracket - 2312500-34, -35 ,-36	1	N	Replace worn part.
38	Bolt - NAS464P5-22	1	N	Replace worn part.
39	Pulley - MS20220-2	1	P	Replace worn part.
40	Bracket - 2315120-11, -12, -33, -34, -37, -39, -40, -41	1	P	Replace worn part.
41	Bolt - AN5-24, -25	1	P	Replace worn part.
42	Bellcrank - 2315129-4	8	Q, R	Replace worn part.
	3115042-1	9	Q, R	Replace worn part.
43	Bearing - B-540-ZZ	8	Q	Replace worn part. Install new bearing in wet primer.
	(Alt. - B540DD)	8	Q	Replace worn part. Install new bearing in wet primer.
	MS27646-40	9	Q	Replace worn part. Install new bearing in wet primer.
44	Shaft - 2315121-29, -35	1	Q	Replace worn part.
45	Bolt - NAS1306-60H	1	Q	Replace worn part.
46	Link - 2300003-131	1	R, S	Replace worn part.
47	Bolt - AN24-12	1	R	Replace worn part.
48	Bolt - AN25-12	1	S	Replace worn part.
49	Turnbuckle Eye - NAS648-46LL	1	S	Replace worn part.
50	Bushing - DBS-4-030	1	R	Replace worn part. Press fit into wet primer.
51	Bearing - KS4A	1	S	Replace worn part. Stake new bearing in place or secure with Loctite. (Refer to 51-70-00.)
	(Alt. - MS27645-4A)	1	S	Replace worn part. Stake new bearing in place or secure with Loctite. (Refer to 51-70-00.)

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 16)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
52	Aft Rod End - 2315121-14	9	S	Replace worn part.
	7003100-901	10	S	Replace worn part.
53	Bolt - AN24-15	9	S	Replace worn part.
54	Connecting Rod - 2315121-21	10	T	Replace worn part.
	2415149-4	12	T	Replace worn part.
	3115140V1-1	13	T	Replace worn part.
	3115040-2	14	T	Replace worn part.
55	Bolt - NAS464P4-9	1	T	Replace worn part.
56	Bellcrank - 2315121-1	15	T, U, V	Replace worn part.
	2315138-1, -4, -6, -8	16	T, U, V	Replace worn part.
57	Bearing - LS4	17	T, U	Replace worn part.
	MS21233-4	18	T, U	Replace worn part. Secure new bearing with
	(Alt. - LHSSVV-4)	1	T, U	Loctite. (Refer to 51-70-00.)
	(Alt. - BLFN-4)	1	T, U	
	(Alt. - BLFN-4-100)	1	T, U	
	(Alt. - RSST-4)	1	T, U	
58	Bolt - NAS464P4-9	1	U	Replace worn part.
59	Clevis, Rod End - 2315121-14	1	U	Replace worn part.
60	Bearing - AN201KP4A	1	V	Replace worn part. Install new bearing in wet primer.
61	Bolt - NAS1304-32H	1	V	Replace worn part.
62	Bracket - 2315122-1, -7, -8, -17, -18, -117, -118, -122, -133, -149	1	V	Replace worn part.
63	Bearing, Rod End - MS21242-205	1	W	Replace worn part.
64	Pedal Support - 2315141-17, -18, -29, -30	1	W, X, Y	Replace worn part.
65	Bolt - NAS464P5-9	1	W	Replace worn part.
66	Support Stud - 2315141-20	1	X	Replace worn part.
67	Bearing - AN201KP4A	1	X	Replace worn part.
68	Sleeve Pin - 2315141-12	1	Y	Replace worn part.
69	Bushing - NAS77-8-25	1	Y	Replace worn part.
70	Bushing - NAS75-4-202	1	Y	Replace worn part. Secure new bushing with Loctite. (Refer to 51-70-00.)
71	Rudder Pedal - 2315141-24, -33	19	Y, Z	Replace worn part.
	2384010-2, -6	20	Y, Z	Replace worn part.
	2415171-1, -9	21	Y, Z	Replace worn part.
	2415171-1	22	Y, Z	Replace worn part.
72	Link Assy. - 2315167-22, -29		Z, AA	Replace worn part.
73	Bearing - AG4S	1	AA	Replace worn part. Secure new bearing with Loctite. (Refer to 51-70-00.)
74	Bolt - NAS464P4-9	1	AA	Replace worn part.

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 14 of 16)

REPAIR DATA

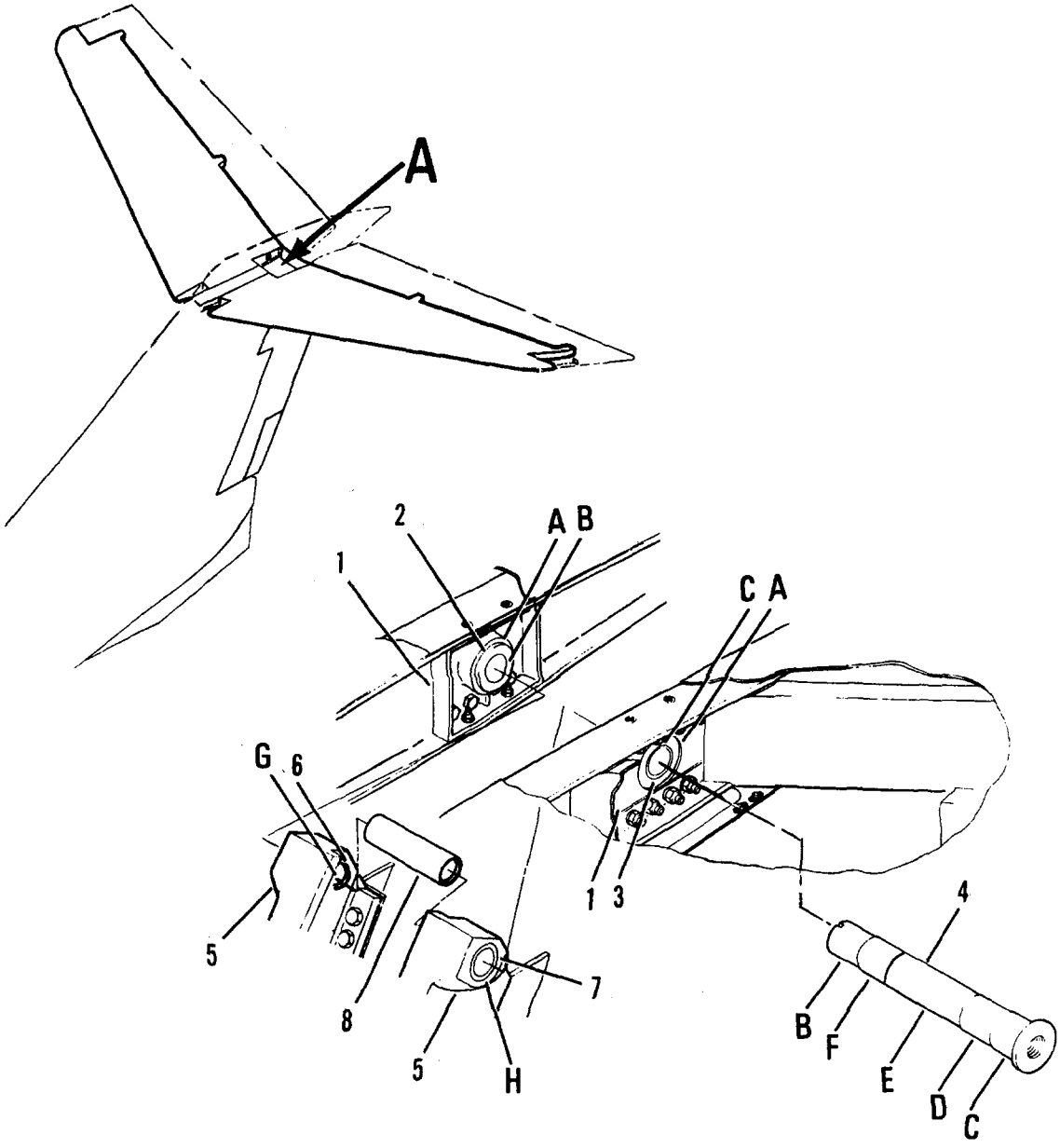
ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
75	Arm Assy. - 2315166-10, -11, -15, -16, -18, -19	1	AA, X, AB	Replace worn part.
76	Bolt - NAS464P3-9	1	AB	Replace worn part.
77	Link - 2315167-14, -27	1	AB	Replace worn part.
78	Bushing - NAS75-3-011	1	AB	Replace worn part.
79	Nut Assy. - 2315167-16	1	AC	Replace worn part.
80	Bushing - NAS75-3-004	1	AC	Replace worn part. Secure new bushing with Loctite. (Refer to 51-70-00.)
81	Lever - 2315167-28	1	AC	Repair worn part.

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 thru 24-305, 24-309 thru 24-322; 25-001 thru 25-201 Except 25-196; 35-001 thru 35-045; 36-001 thru 36-016
3	24-306 thru 24-308, 24-323 and Subsequent; 25-196, 25-202 and Subsequent; 35-046 and Subsequent; 36-017 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent
4	23-001 thru 23-099; 24-100 thru 24-270 Except Aircraft Equipped With Drag Chute
5	24-100 thru 24-270 Equipped With Drag Chute
6	24-271 and Subsequent and Prior Aircraft Equipped With Drag Chute
7	25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
8	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent; 31-001 thru 31-054 Except Aircraft Modified by SB 31-32-2, "Installation of Digital Nose Wheel Steering"
9	31-055 and Subsequent and 31-035 thru 31-054 When Modified by "Installation of Digital Nose Wheel Steering"
10	23-001 thru 23-099; 24-100 thru 24-246 Except Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-001 thru 25-081 Except Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"
11	24-247 and Subsequent and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-082 and Subsequent and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
12	24-247 and Subsequent and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-082 and Subsequent and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-034; 35-001 and Subsequent; 36-001 and Subsequent
13	31-035 thru 31-051
14	31-052 and Subsequent
15	23-001 thru 23-037
16	23-038 and Subsequent; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 15 of 16)

CODES	EFFECTIVITIES
17	23-001 thru 23-099; 24-100 thru 24-171; 25-001 thru 25-011
18	24-172 and Subsequent; 25-012 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
19	23-003 thru 23-099 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 24-100 thru 24-357 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 25-002 thru 25-302 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 28-001 thru 28-005 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 29-001 thru 29-002 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 35-001 thru 35-298 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 36-001 thru 36-044 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"
20	23-001 thru 23-099 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 24-100 thru 24-139 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"
21	23-001 thru 23-099 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 24-358 and Subsequent and 24-100 thru 24-139 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" and 24-140 thru 24-357 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 25-001 thru 25-302 When Modified by A 2381421-1 Kit, 25-303 thru 25-338 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement" and 25-340 thru 25-357 When Modified by AMK 81-03, "Rudder Pedal Heel Support Replacement"; 28-001 thru 28-005 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 29-001 thru 29-003 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 35-001 thru 35-400 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 36-001 thru 36-047 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"
22	23-001 thru 23-099 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 24-140 thru 24-357 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 25-339 and Subsequent When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 28-006 and Subsequent When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 29-004 and Subsequent When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 31-001 and Subsequent; 35-401 and Subsequent When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 36-048 and Subsequent When Modified by a 2384010-5 Kit
23	23-001 thru 23-099 Not Equipped With Yaw Sensor; 24-100 and Subsequent Not Equipped With Yaw Sensor; 25-001 and Subsequent Not Equipped With Yaw Sensor; 28-001 and Subsequent Not Equipped With Yaw Sensor; 29-001 and Subsequent Not Equipped With Yaw Sensor; 31-001 and Subsequent Not Equipped With Yaw Sensor; 35-001 and Subsequent Not Equipped With Yaw Sensor; 36-001 and Subsequent Not Equipped With Yaw Sensor
24	23-001 thru 23-099 Equipped With Yaw Sensor; 24-100 and Subsequent Equipped With Yaw Sensor; 25-001 and Subsequent Equipped With Yaw Sensor; 28-001 and Subsequent Equipped With Yaw Sensor; 29-001 and Subsequent Equipped With Yaw Sensor; 31-001 and Subsequent Equipped With Yaw Sensor; 35-001 and Subsequent Equipped With Yaw Sensor; 36-001 and Subsequent Equipped With Yaw Sensor

Rudder Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 16 of 16)



Detail A

Horizontal Stabilizer Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Hinge Assy. - 2332015-1, -2, -7, -8, -16, -17, -20, -21	1	A	2.3000	–	+0.1100/ -0.0000	-	–	–
2	Bushing - NMB (A) AJF16C-101	1	B		1.2510		+0.0000/ -0.0005	–	–
	(Alt. - KJB172016B)	1	B		1.2510		+0.0000/ -0.0005	–	–
3	Bushing - NMB (A) AJF18C-102	1	C		1.3760		+0.0000/ -0.0005	–	–
	(Alt. - KJB172118B)	1	C		1.3760		+0.0000/ -0.0005	–	–
4	Pin - 2331028-1, -2, -3, -4, -5, -6	2	C	–	1.1280	–	+0.0000/ -0.0005	–	–
			D	–	1.0937	–	+0.0005/ -0.0000	–	–
			E	–	1.0320	–	±0.0100	–	–
			F	–	1.0312	–	+0.0005/ -0.0000	–	–
			B	–	1.0030	–	+0.0000/ -0.0005	–	–
	2430000-1929-1, -2	3	C	–	1.1305	–	+0.0000/ -0.0010	–	–
			D	–	1.0937	–	+0.0005/ -0.0000	–	–
			E	–	1.0320	–	±0.0100	–	–
			F	–	1.0312	–	+0.0005/ -0.0000	–	–
			B	–	1.0049	–	+0.0000/ -0.0005	–	–
5	Hinge Assy. - 2331025-1, -2, -7, -8, (Alt.2331025-15, -16)	4	G	1.1875	–	+0.0005/ -0.0000	–	–	–
			H	1.2500	–	+0.0005/ -0.0000	–	–	–
	2530000V2-1, -2	5	G	1.1875	–	+0.0005/ -0.0000	–	–	–
			H	1.2500	–	+0.0005/ -0.0000	–	–	–

Horizontal Stabilizer Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
	6031025-1, -2, -5, -6, -11, -12	6	G	1.1875	–	+0.0005/ -0.0000	–	–	–
			H	1.2500	–	+0.0005/ -0.0000	–	–	–
6	Bushing, LH - 2331025-7	4	F	1.0937	1.2510	+0.0005/ -0.0000	+0.0005/ -0.0000	–	–
	2331025-13	5	F	1.0937	1.2510	+0.0005/ -0.0000	+0.0005/ -0.0000	–	–
	6031025-5	6	F	1.0937	1.2510	+0.0005/ -0.0000	+0.0005/ -0.0000	–	–
7	Bushing, RH - 2331025-8	4	D	1.0312	1.1885	+0.0005/ -0.0000	+0.0005/ -0.0000	–	–
	2331025-14	5	D	1.0312	1.1885	+0.0005/ -0.0000	+0.0005/ -0.0000	–	–
	6031025-6	6	D	1.0312	1.1885	+0.0005/ -0.0000	+0.0005/ -0.0000	–	–
8	Sleeve - 2431111-1, -2	7	E	1.0600	1.2500	–	–	–	–
	2431111-3	8	E	0.9300	1.0000	±0.0100	±0.0100	–	–

Horizontal Stabilizer Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 5)

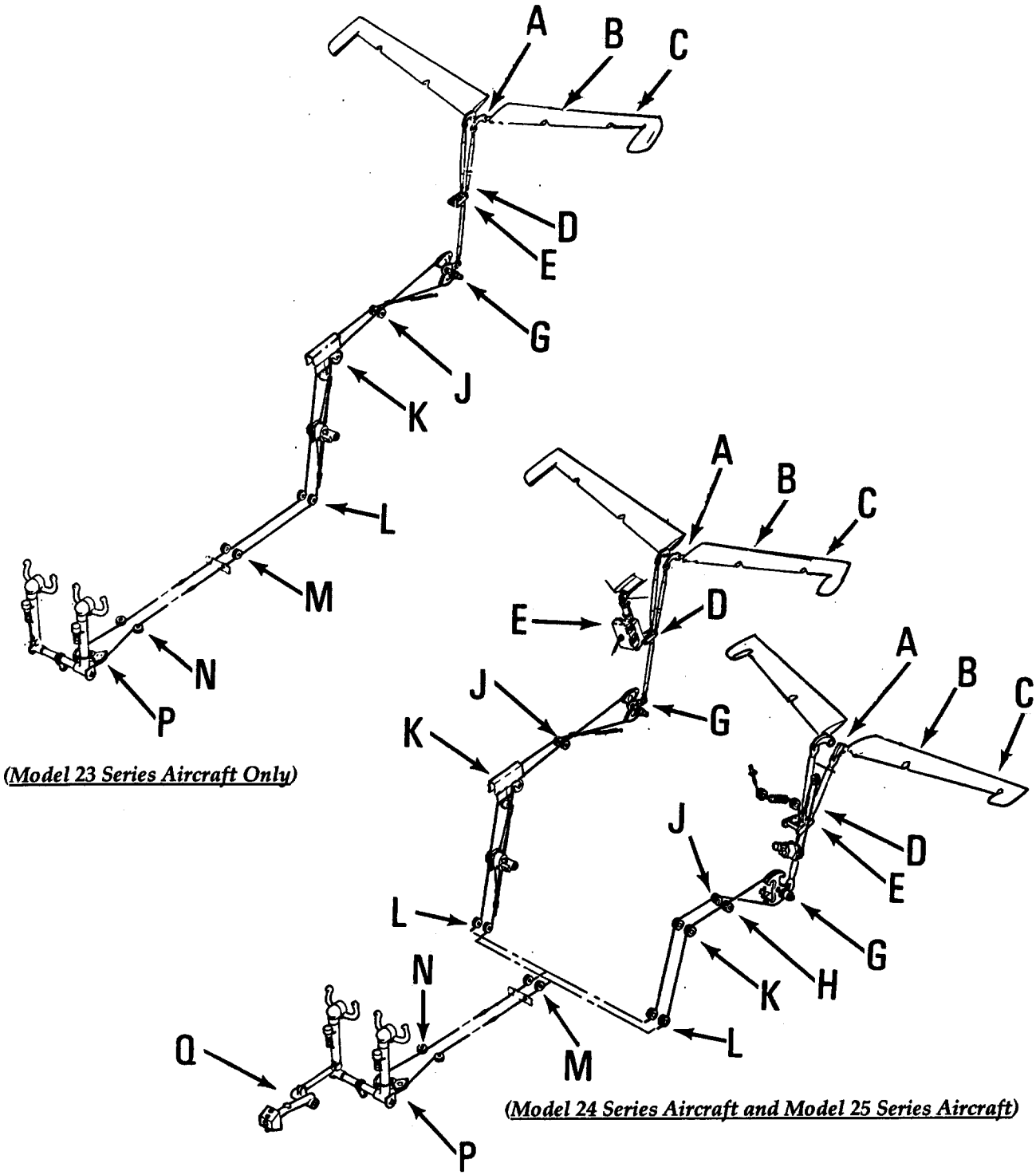
REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Hinge Assy. - 2332015-1, -2, -7, -8, -16, -17, -20, -21	1	A	Replace worn part.
2	Bushing - NMB (A) AJF16C-101 (Alt. - KJB172016B)	1	B	Replace worn part.
3	Bushing - NMB (A) AJF18C-102 (Alt. - KJB172118B)	1	C	Replace worn part.
4	Pin - 2331028-1, -2, -3, -4, -5, -6	2	B, C, D, E, F	Replace worn part.
	2331028-1929-1, -2	3	B, C, D, E, F	Replace worn part.
5	Hinge Assy. - 2331025-1, -2, -7, -8 (Alt. 2331025-15, -16)	4	G, H	Replace worn part.
	5430000V2-1, -2	5	G, H	Replace worn part.
	6031025-1, -2, -5, -6, -11, -12	6	G, H	Replace worn part.
6	Bushing, LH - 2331025-7	4	F	Replace worn part.
	2331025-13	5	F	Replace worn part.
	6031025-5	6	F	Replace worn part.
7	Bushing, RH - 2331025-8	4	D	Replace worn part.
	2331025-14	5	D	Replace worn part.
	6031025-6	6	D	Replace worn part.
8	Sleeve - 2431111-1, -2	7	E	Replace worn part.
	2431111-3	8	E	Replace worn part.

Horizontal Stabilizer Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 5)

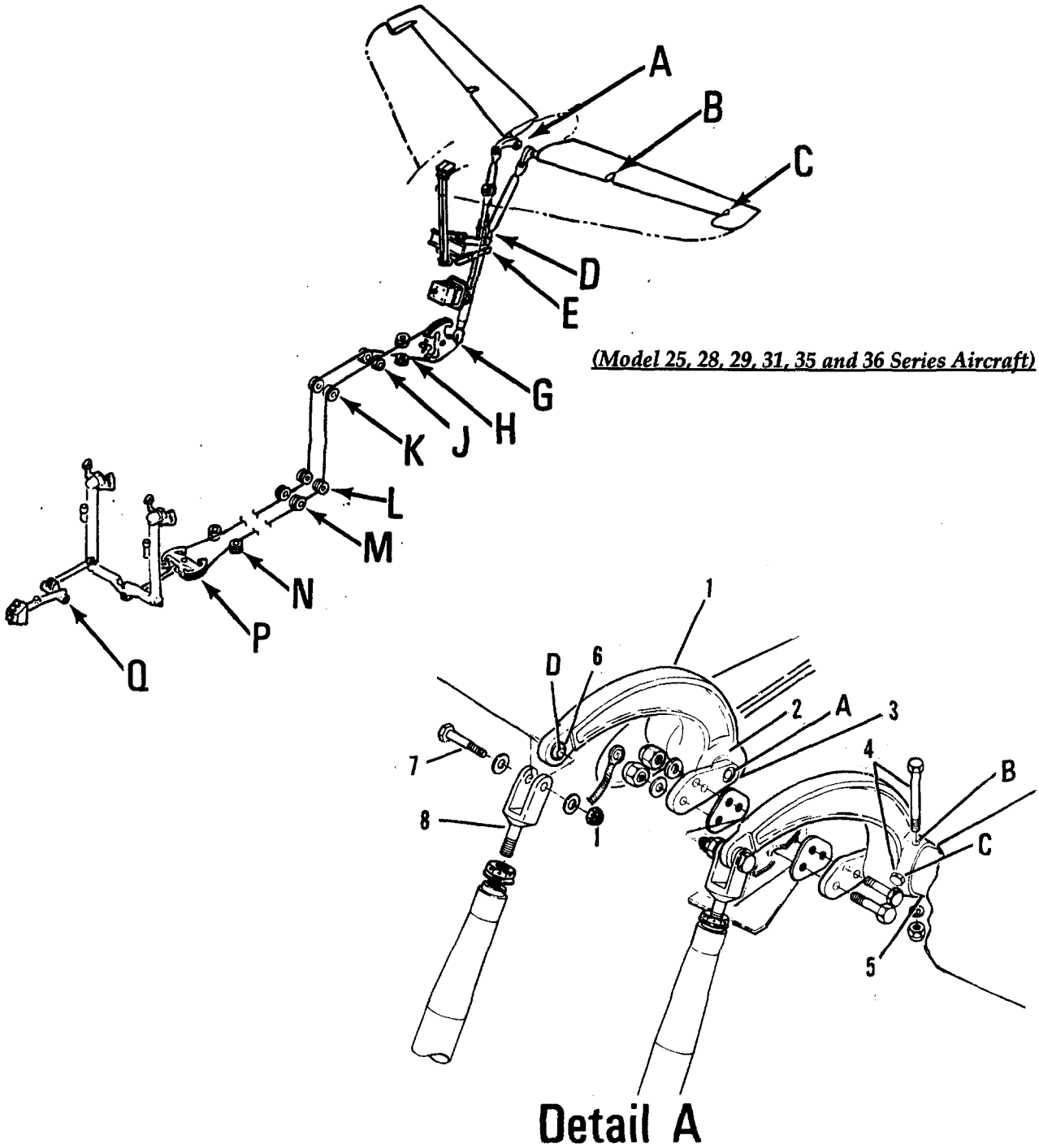
CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 and Subsequent Except 24-307 and 24-323; 25-001 and Subsequent Except For 25-204; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
3	24-307 and 24-323; 25-204
4	23-001 thru 23-099 Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 24-100 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 25-001 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 28-001 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 29-001 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 31-001 thru 31-042 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 35-001 thru 35-670 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 36-001 thru 36-063 and Subsequent Except When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"
5	31-043 thru 31-049
6	23-001 thru 23-099 When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 24-100 and Subsequent When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 25-001 and Subsequent When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 28-001 and Subsequent When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 29-001 and Subsequent When Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 31-050 and Subsequent and Prior Aircraft Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 35-671 and Subsequent and Prior Aircraft Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"; 36-064 and Subsequent and Prior Aircraft Modified by SSK 9101, "Replacement of Horizontal Stabilizer Hinge Assembly"
7	23-001 thru 23-099; 24-100 and Subsequent; 25-001 thru 25-375; 28-001 thru 28-005; 29-001 thru 29-004; 35-001 thru 35-525; 36-001 thru 36-053
8	25-376 and Subsequent; 31-001 and Subsequent; 35-525 and Subsequent; 36-054 and Subsequent

Horizontal Stabilizer Fittings - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 5)



8-104A
A8-14C-1

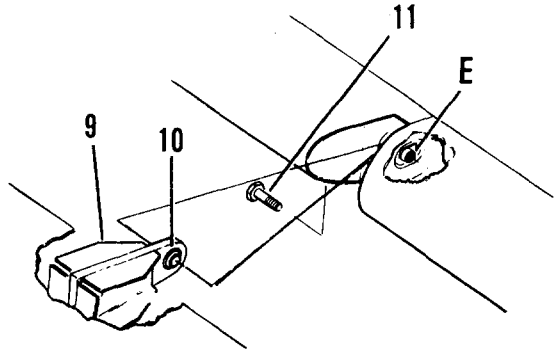
Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 29)



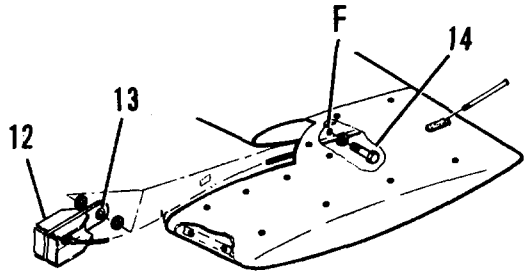
(Model 25, 28, 29, 31, 35 and 36 Series Aircraft)

B8-14C-1
C8-14C
D8-15C

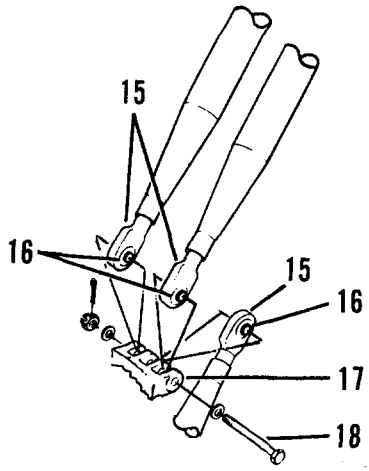
Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 29)



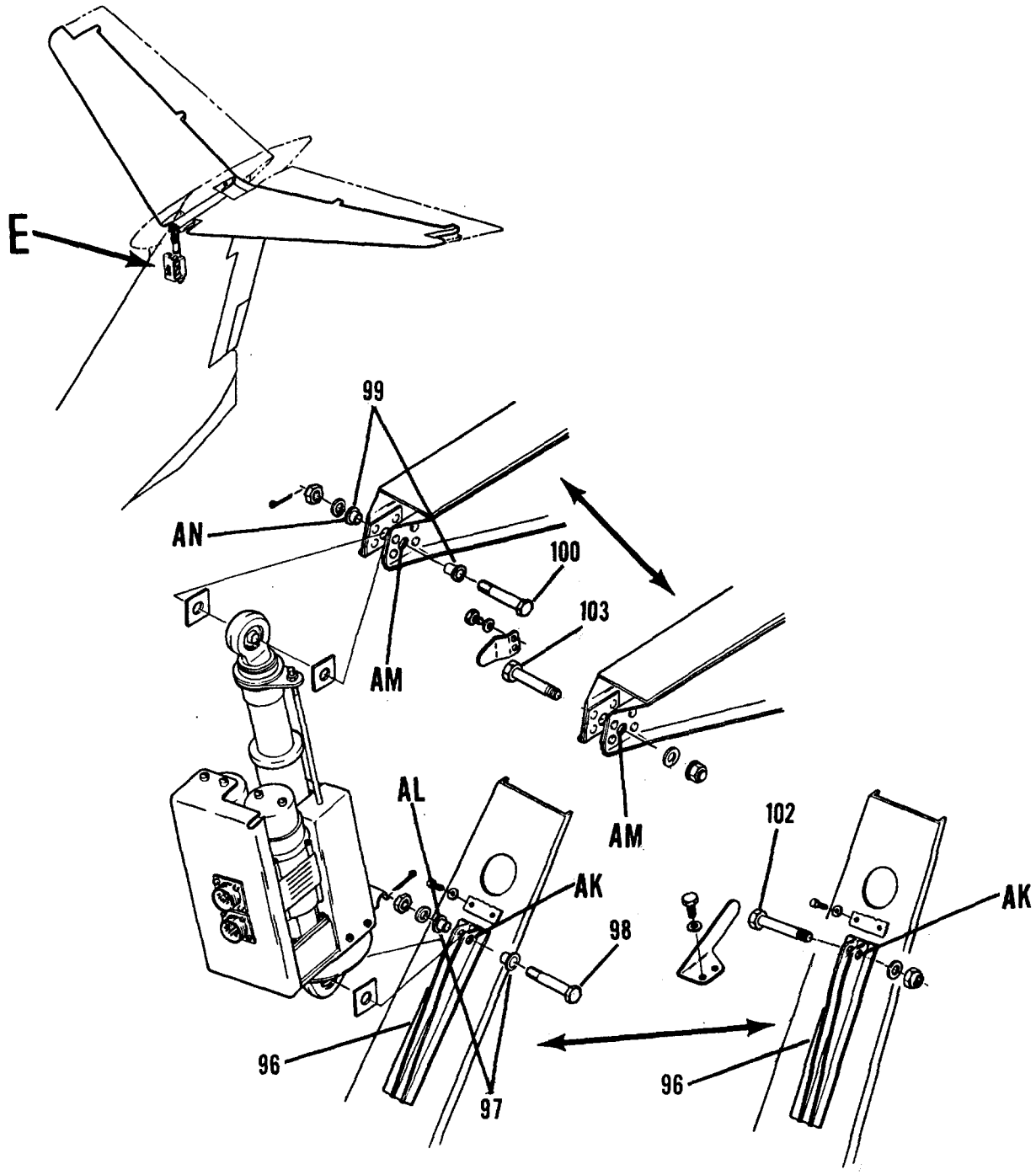
Detail B



Detail C

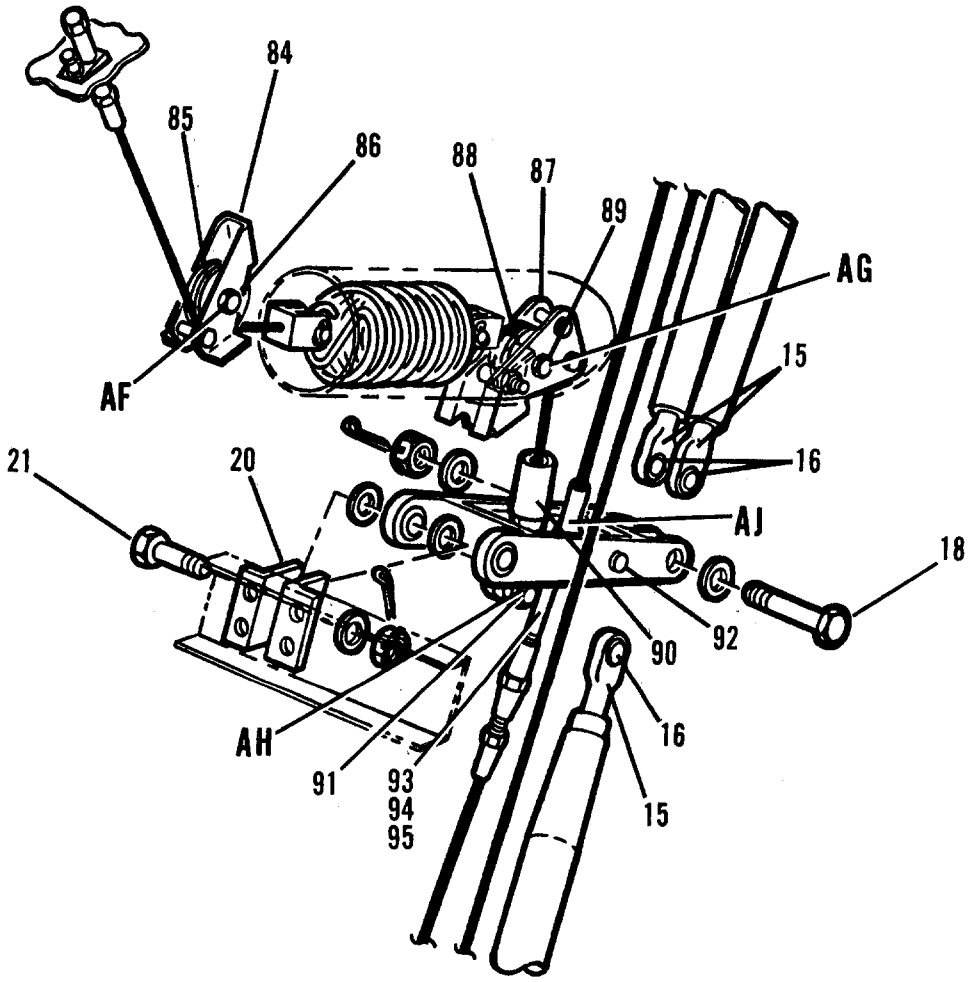


Detail D

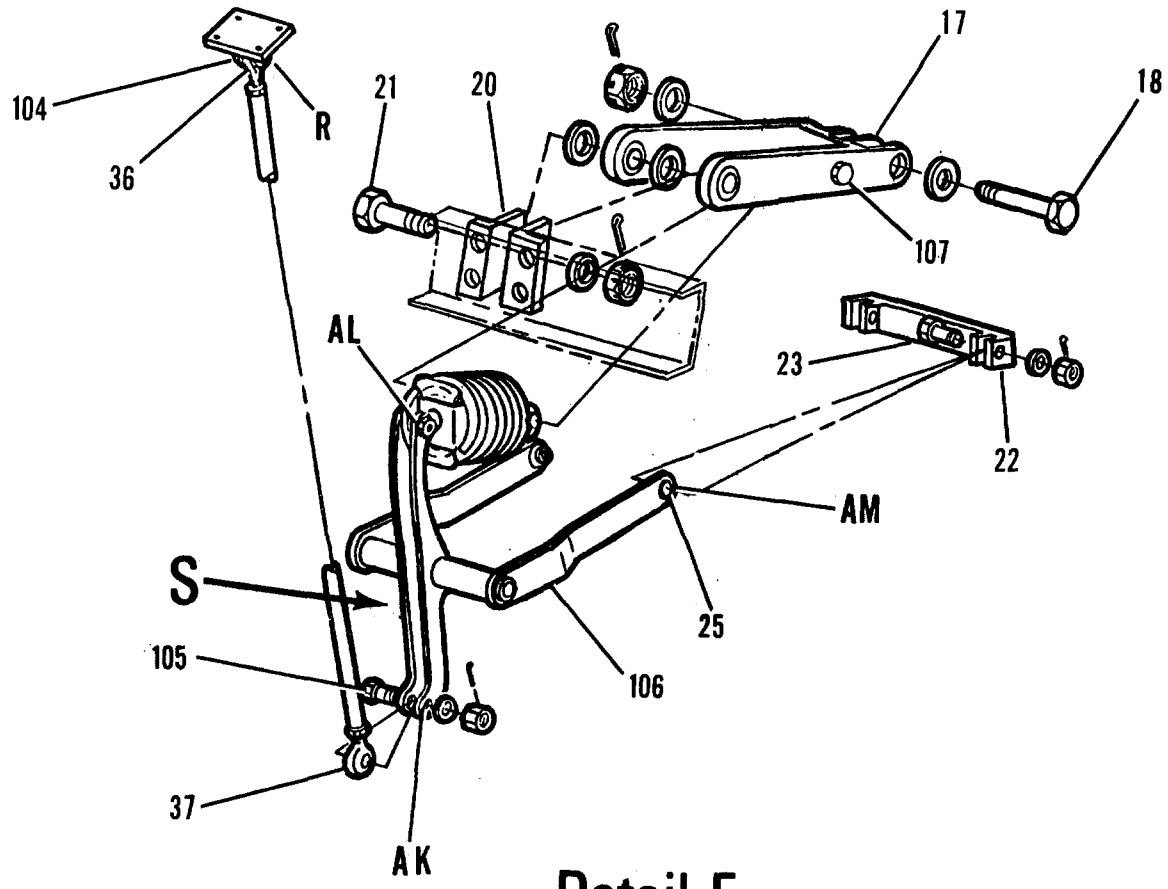


Detail E

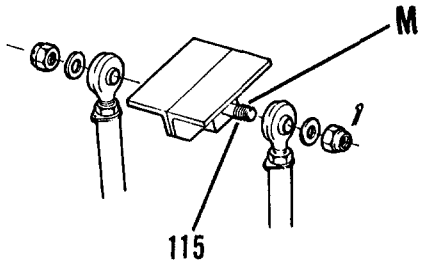
Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 29)



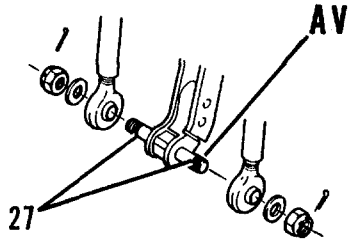
Detail E



Detail E



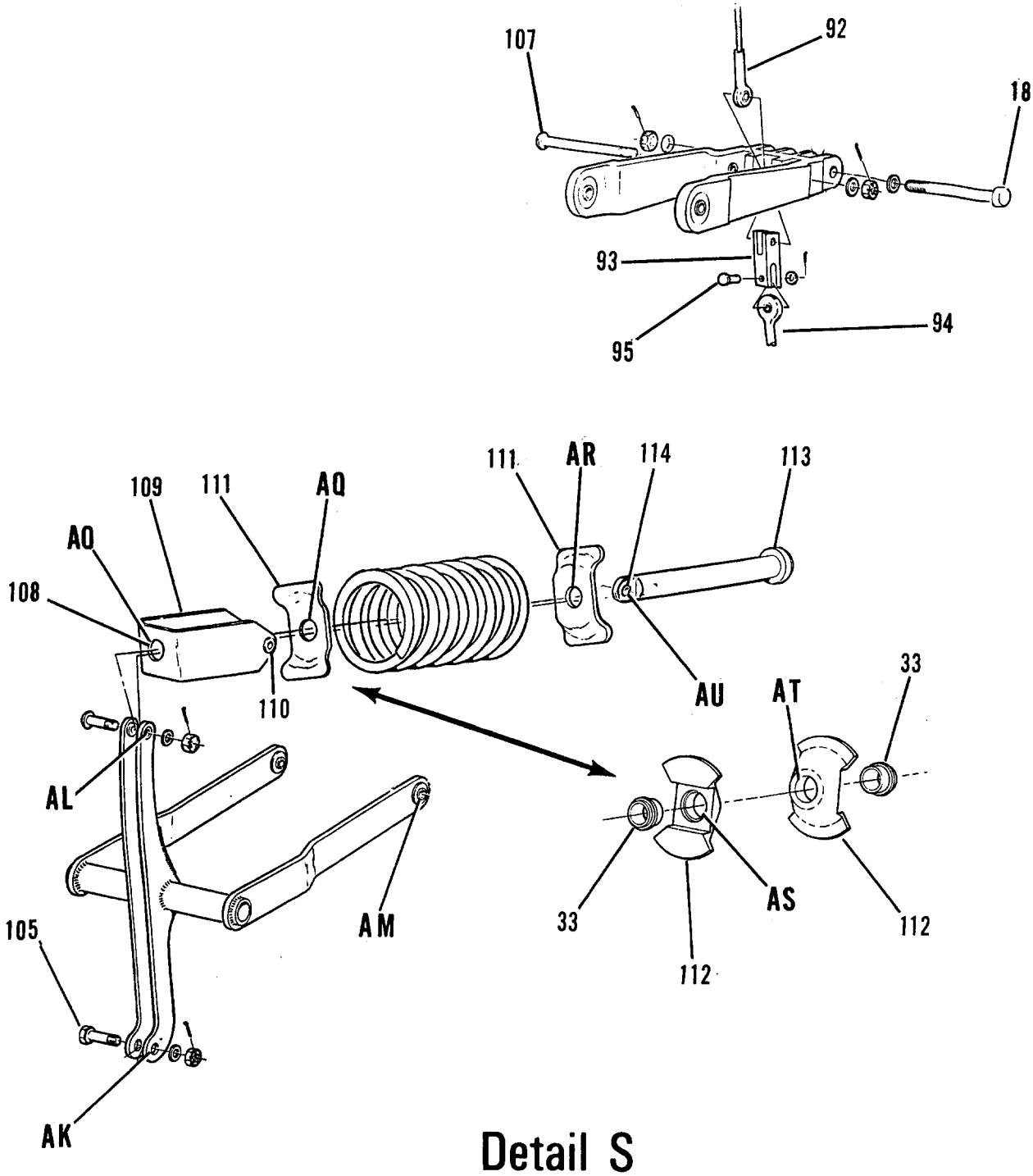
Detail T



Detail U

EF8-52C-1

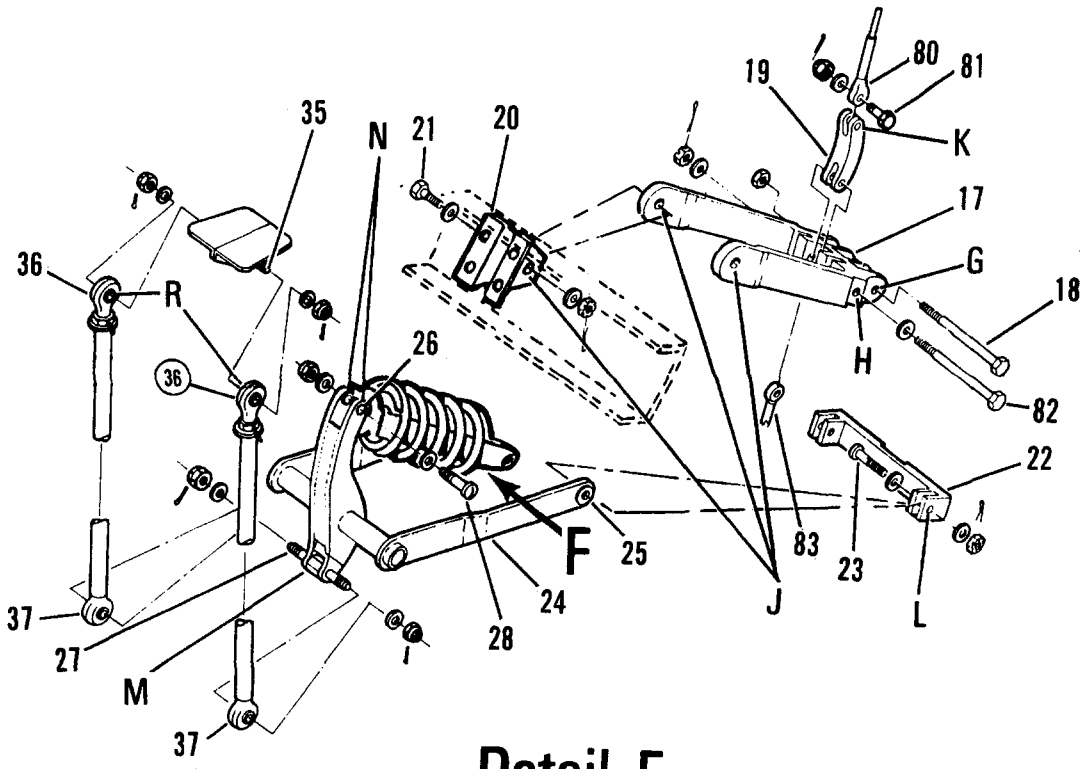
Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 29)



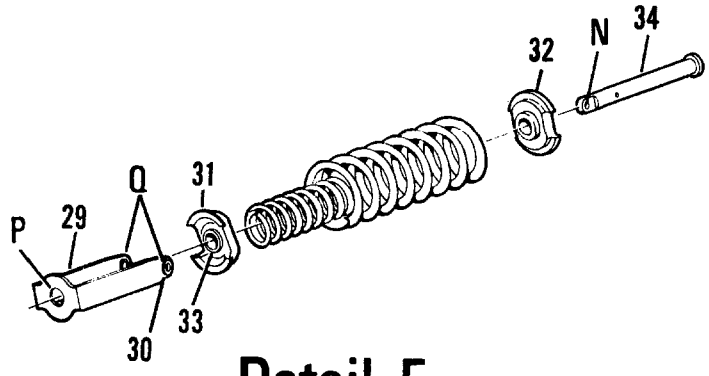
Detail S

G8-14C
H8-82A

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 29)



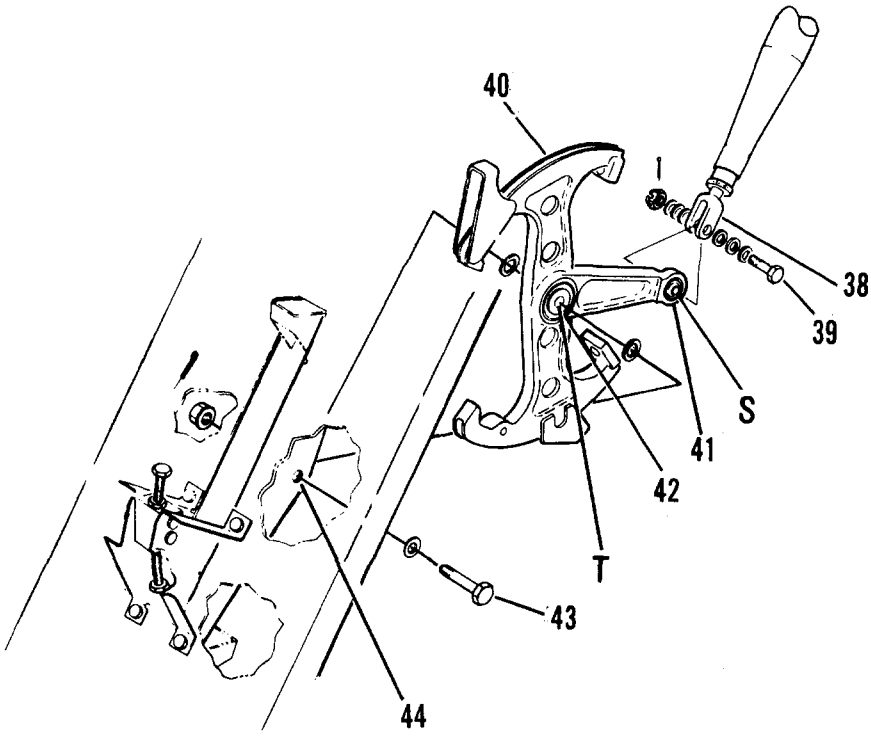
Detail E



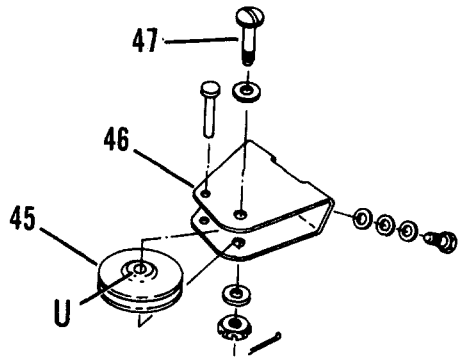
Detail F

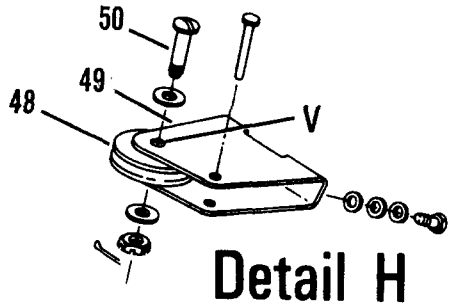
J8-81A
KL8-44B
M8-32C
N8-9C

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 29)



Detail G

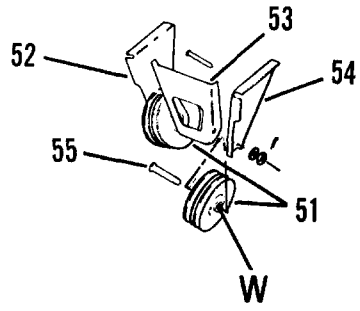




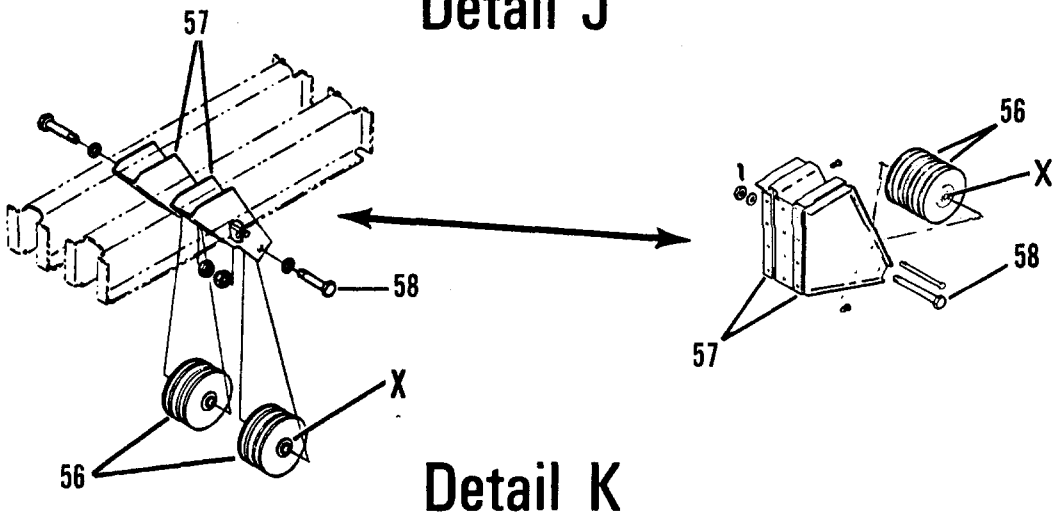
Detail H

J8-81A
KL8-44B
M8-32C
N8-9C

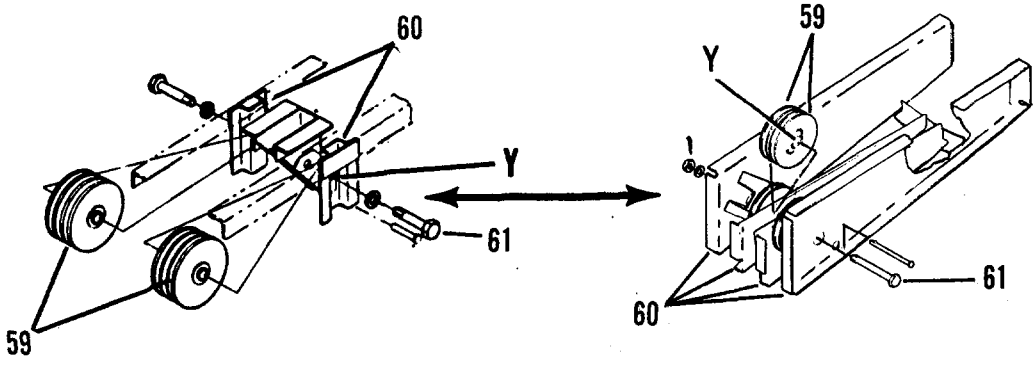
Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 29)



Detail J



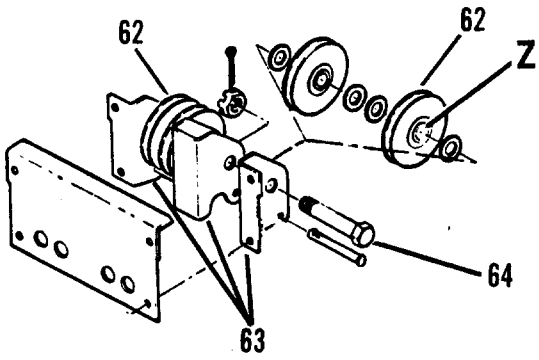
Detail K



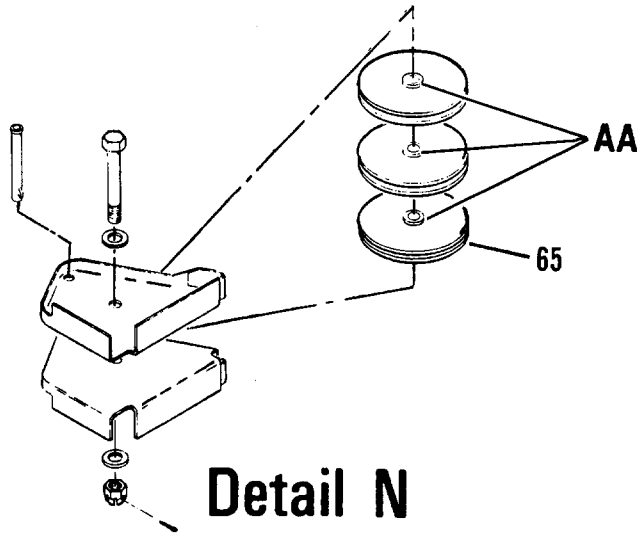
Detail L

P8-15C

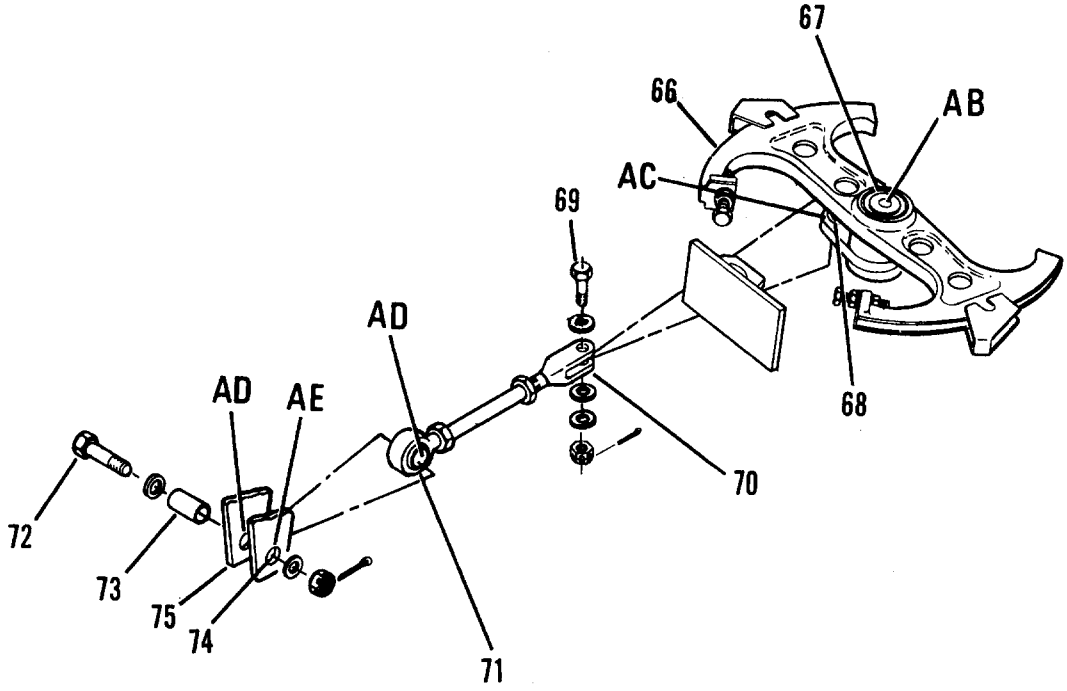
Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 29)



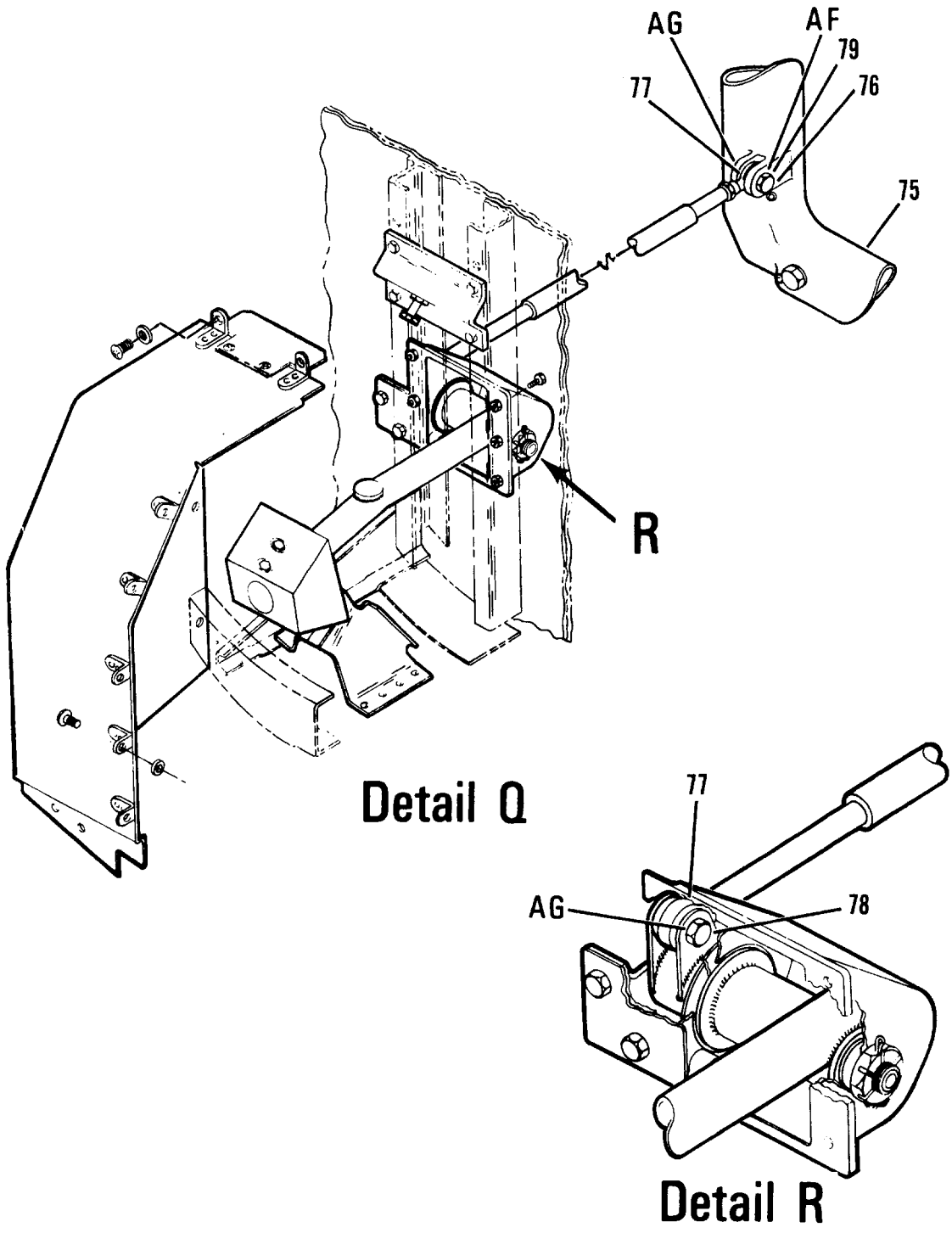
Detail M



Detail N



Detail P



QR8-43D

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 29)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
1	Bellcrank Assy. - 2331511-15, -16, -33, -34, -45, -46, -61, -62, -83, -84, -101, -102, -801, -802	1	A	0.7493	–	+0.0000/ -0.0005	–	–	–
			B, C	0.3140	–	+0.0030/ -0.0000	–	–	–
			D	0.7395	–	+0.0005/ -0.0000	–	–	–
2	Bearing - MS27645-4A	1	A	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
3	Pin - HL 18-8-9	2	A	–	0.2495	–	+0.0000/ -0.0010	–	–
	Bolt - 2331511-87	3	A	–	0.2495	–	+0.0000/ -0.0010	–	–
4	Bolt - NAS464P4A-32 [1]	4	B, C	–	–	–	–	–	–
	NAS464P4A-30 [1]	5	B, C	–	–	–	–	–	–
	SB410A4K28S	6	B, C	–	–	–	–	–	–
5	Torque Tube - 2434003-7	1	B, C	0.3140	–	0.0030	–	–	–
6	Bearing - BLFR-4-045	1	D	–	–	–	–	–	–
7	Bolt - NAS464P4-14	1	D	–	0.2492	–	+0.0000/ -0.0009	–	–
8	Rod End Clevis - 2331510-75	7	D	0.2492	–	+0.0010/ -0.0000	–	–	–
	2331510-31	8	D	0.2492	–	+0.0010/ -0.0000	–	–	–
9	Hinge Assy. - 2332018-16, -20, -22	1	E	0.7488	–	+0.0005/ -0.0000	–	–	–
10	Bearing - AN201KP4A	1	E	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
11	Bolt - AN4H11A	1	E	–	0.2490	–	+0.0000/ -0.0030	–	–
12	Hinge Assy. - 2332013-19, -22, -24	48	F	0.7488		+0.0005/ -0.0000	–	–	–
	3532003-1, -2	49	F	0.7488		+0.0005/ -0.0000	–	–	–
13	Bearing - AN201KP4A	48	F	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	MS27641-4	49	F	0.2500	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
14	Bolt - AN4H11A	1	F	–	0.2490	–	+0.0000/ -0.0030	–	–
15	Bearing Rod End - 2331510-28	1	G	0.9020	–	+0.0020/ -0.0000	–	–	–

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 29)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
16	Bearing - AN200KS-4	1	G	0.2500	0.9014	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	(Alt. MS27645-4)	1	G	0.2500	0.9014	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
17	Yoke - 2331512-2	9	G	0.2492	–	+0.0010/ -0.0000	–	–	–
			H	0.2495	–	+0.0010/ -0.0000	–	–	–
			J	0.7494	–	+0.0000/ -0.0006	–	–	–
	2331517-2	10	G	0.2492	–	+0.0010/ -0.0000	–	–	–
			H	0.2495	–	+0.0010/ -0.0000	–	–	–
			J	0.7494	–	+0.0000/ -0.0006	–	–	–
	2531533-1	11	G	0.2492	–	+0.0010/ -0.0000	–	–	–
			H	0.2495	–	+0.0010/ -0.0000	–	–	–
			J	0.7494	–	+0.0000/ -0.0006	–	–	–
	2531533-5	12	G	0.2492	–	+0.0010/ -0.0000	–	–	–
			H	0.2495	–	+0.0010/ -0.0000	–	–	–
			J	0.7494	–	+0.0000/ -0.0006	–	–	–
	2631508-2	13	G	0.2492	–	+0.0010/ -0.0000	–	–	–
			H	0.2495	–	+0.0010/ -0.0000	–	–	–
			J	0.7494	–	+0.0000/ -0.0006	–	–	–
18	Bolt - NAS464P4-35	1	G	–	0.2492	–	+0.0000/ -0.0009	–	–
19	Cable Fitting - 2631509-1 (Alt. 2631509-2)	1	H	0.2500	–	+0.0050/ -0.0000	–	–	–
			K	0.1880	–	+0.0050 -0.0000 -0.0000	–	–	–
20	Hinge Bracket - 2331510-17	1	J	0.2500	–	+0.0020/ -0.0000	–	–	–

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 14 of 29)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
21	Bolt - NAS464P4-9	1	J	–	0.2492	–	+0.0000/ -0.0009	–	–
22	Down-spring Frame Brkt - 2531539-1	1	L	0.1895	–	+0.0010/ -0.0000	–	–	–
23	Bolt - AN23-13	1	L	–	0.1860	–	+0.0000/ -0.0020	–	–
24	Down-spring Frame - 2631507-1, -8, -10, -12, -16	13	L	0.5628	–	+0.0000/ -0.0004	–	–	–
			M	0.2505	–	+0.0000/ -0.0010	–	–	–
			N	0.3125	–	+0.0005/ -0.0000	–	–	–
25	Bearing - F3DD	22	–	–	–	–	–	–	–
26	Bushing - 2631507-6	13	N	0.1560	0.3136	±0.0100	+0.0000/ -0.0005	–	–
27	Stud - 2631515-5	17	M	–	0.2492	–	+0.0000/ -0.0009	–	–
28	Bolt - AN23-16	13	N	–	0.1860	–	+0.0000/ -0.0020	–	–
29	Drawbar - 2631503-4, -6	13	P	0.6250	–	+0.0020/ -0.0000	–	–	–
			Q	0.3750	–	+0.0000/ -0.0010	–	–	–
30	Bushing - 2631503-3	13	Q	0.2340	0.3760	+0.0050/ -0.0000	+0.0010/ -0.0000	–	–
31	Down-spring Retainer - 2631505-2 (Alt. 2631505-4)	13	P	0.6250	–	+0.0020/ -0.0000	–	–	–
32	Down-spring Retainer - 2631505-1	13	P	0.5150	–	+0.0000/ -0.0050	–	–	–
33	Bushing - 2631505-3	27	P	0.5150	0.6250	+0.0000/ -0.0005	+0.0000/ -0.0020	–	–
34	Drawbolt - 2631504-1, -2	13	P	–	0.5000	–	+0.0000/ -0.0050	–	–
			N	0.3160	–	+0.0040/ -0.0000	–	–	–
35	Stud - 2631515-5	13	R	–	0.2492	–	+0.0000/ -0.0009	–	–

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 15 of 29)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
36	Bearing Rod End - 2531538-3 (Alt. HMK-4DA)	17	R		–	–	–	–	–
37	Bearing Rod End - HMVV-4	13	M		–		–	–	–
38	Clevis Rod End - 2331510-32	13	S	0.2492	–	+0.0010/ -0.0000	–	–	–
39	Bolt - NAS464P4-11	13	S	–	0.2492	–	+0.0000/ -0.0009	–	–
40	Sector Assy - 2315121-24	32	S	0.7788	–	+0.0005/ -0.0005	–	–	–
			T	1.4363	–	+0.0005/ -0.0000	–	–	–
	2315147-2	33	S	0.7500	–	+0.0030/ -0.0000	–	–	–
			T	1.4370	–	+0.0030/ -0.0000	–	–	–
41	Bearing - AN201 KP-4-A	32	S	–	–	–	–	–	–
	MS27645-4A (Alt. - KS4A) (Alt. - AN200KS4A)	33	S	0.2500	0.9014	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
42	Bearing - B-540-ZZ	32	T	–	–	–	–	–	–
	DPP-6	33	T	–	–	–	–	–	–
43	Bolt - AN6-17	34	T	–	0.3742	–	+0.0000/ -0.0009	–	–
	NAS464P6-21, -22	35	T	–	0.3742	–	+0.0000/ -0.0009	–	–
44	Bracket - 2331006-11, -12, -18, -19, -25, -26, -49, -50	41	T	0.3747	–	+0.0015/ -0.0000	–	–	–
	2331006-60, -61	42	T	0.3750	–	+0.0010/ -0.0010	–	–	–
45	Pulley - MS20220A1	36	U	0.3125	1.7500	±0.0005	±0.0050	–	–
46	Bracket - 2615114-1, -4	36	U	0.3120	–	+0.0100 -0.0000	–	–	–
47	Bolt - AN25-17	36	U	–	0.3110	–	+0.0000/ -0.0020	–	–

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 16 of 29)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
48	Pulley - MS20220A2	36	V	0.3125	3.0000	±0.0005	±0.0050	–	–
49	Bracket - 2515115-1	36	V	0.3120	–	+0.0100/ -0.0000	–	–	–
50	Bolt - AN25-17	36	V	–	0.3110	–	+0.0000/ -0.0020	–	–
51	Pulley - MS20220-2	37	W	0.3125	3.0000	±0.0005	±0.0050	–	–
	MS20220A2	38	W	0.3125	3.0000	±0.0005	±0.0050	–	–
52	Bracket - 2512500-24	39	W	0.3120	–	+0.0060 -0.0010	–	–	–
	2615119-1	40	W	0.3120	–	+0.0100 -0.0000	–	–	–
53	Bracket - 2512500-22	39	W	0.3120	–	+0.0060 -0.0010	–	–	–
	2615112-2	40	W	0.3120	–	+0.0100 -0.0000	–	–	–
54	Bracket - 2512500-23	39	W	0.3120	–	+0.0060 -0.0010	–	–	–
	2615113-1	40	W	0.3120	–	+0.0100/ -0.0000	–	–	–
55	Bolt - AN25-27	36	W	–	0.3110	–	+0.0000/ -0.0020	–	–
56	Pulley - MS20220A2	1	X	0.3125	3.0000	+0.0005/	+0.0050 -0.0000	–	–
57	Bracket - 2512500-5, -6, -7, -8, -11, -12, -42, -44, -55, -56, -57, -58	1	X	0.3120	–	+0.0060/ +0.0010	–	–	–
58	Bolt - NAS464P5-44 NAS464P5-23	1	X	–	0.3117	–	+0.0000/ -0.0009	–	–
59	Pulley - MS20220A2	1	Y	0.3125	3.0000	±0.0005	±0.0050	–	–
60	Bracket - 2512500-27, -28	4	Y	0.3120	–	+0.0060/ -0.0001	–	–	–
	2488510-4, -5	5	Y	0.3120	–	+0.0060/ -0.0001	–	–	–
	2488710-4, -5	6	Y	0.3120	–	+0.0060/ -0.0001	–	–	–
	2512500-6, -17, -18, -33, -34, -39, -40, -47	7	Y	0.3120	–	+0.0060/ -0.0001	–	–	–
61	Bolt - NAS464P5-44, -23	1	Y	–	0.3117	–	+0.0000/ -0.0009	–	–

Elevator System - Allowable Wear and Repair Data
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WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
62	Pulley - MS20220A1	1	Z	0.3125	1.7500	±0.0005	±0.0050	–	–
63	Bracket - 2312500-34, -35, -36	1	Z	0.3120	–	+0.0060/ -0.0010	–	–	–
64	Bolt - NAS464P5-22	1	Z	–	0.3117	–	+0.0000/ -0.0009	–	–
65	Pulley - MS20220-2	1	AA	–	–	–	–	–	–
65A	Bolt - AN5-24, -25	1	AA	–	0.3120	–	+0.0000/ -0.0030	–	–
66	Sector Assy. - 2315147-1, -9	1	AB	1.3125	–	+0.0010/ -0.0000	–	–	–
			AC	0.7500	–	+0.0030/ -0.0000	–	–	–
67	Bearing - B-540-ZZ	1	AB	–	–	–	–	–	–
68	Bearing - MS21233-5	1	AC	0.3125	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
69	Bolt - NAS464P4-9, -12	43	AC	–	0.2492	–	+0.0000/ -0.0009	–	–
	NAS464P5-12	44	AC	–	0.3117	–	+0.0000/ -0.0009	–	–
70	Clevis Rod End - 2315121-14, -33	43	AC	0.2500	–	+0.0010/ -0.0000	–	–	–
	2315168-5	44	AC	0.3117	–	+0.0010/ -0.0000	–	–	–
71	Bearing Rod End - 2315121-14, -33	43	AD	–	–	–	–	–	–
	RE5M6 (Alt. REP5M6FS464) (Alt. MS21151-10)	44	AD	–	–	–	–	–	–
72	Bolt - NAS464P4-9, -12	43	AD	–	0.3117	–	+0.0000/ -0.0009	–	–
	NAS464P5-27, -32	44	AD	–	0.3117	–	+0.0000/ -0.0009	–	–
73	Bushing - NAS75-5-13, -018	44	AD	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
74	Bushing - NAS75-5-013	44	AE	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–

Elevator System - Allowable Wear and Repair Data
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WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
75	Yoke Assembly - 2415152-1, -3 (Alt. 2415152-5)	45	AD	0.4375	–	±0.0005	–	–	–
			AE	0.4393	–	±0.0005	–	–	–
			AF	0.3750	–	±0.0005	–	–	–
			AG	0.3373	–	+0.0005/ -0.0012	–	–	–
	2615270-1	46	AD	0.4375	–	±0.0005	–	–	–
			AE	0.4393	–	±0.0005	–	–	–
			AF	0.3750	–	±0.0005	–	–	–
			AG	0.3373	–	+0.0005/ -0.0012	–	–	–
76	Bolt - NAS464P4-15, -17, -19, -26	48	AF	–	0.2492	–	+0.0000/ -0.0009	–	–
77	Bearing Rod End - SM4-6D-1 (Alt. RM4B) (Alt. RM4BH)	48	AF	–	–	–	–	–	–
78	Bolt - NAS464P4-10	48	AG	–	0.2492	–	+0.0000/ -0.0009	–	–
79	Bushing - NAS75-4-10, NAS77-4-27	48	AF	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
80	Servo Cable - 2300003-256	1	K	0.1900	–	+0.0020/ -0.0000	–	–	–
81	Bolt - NAS464P3-7	1	K	–	0.1894	–	+0.0000/ -0.0009	–	–
82	Bolt - NAS1104-48D	1	H	–	0.2495	–	+0.0000/ -0.0010	–	–
83	Turnbuckle - 2631511-1	1	H	0.2510	–	+0.0030/ -0.0000	–	–	–
84	Bracket - 2331516-2, -17, -18, -20, -21	17	AF	0.2500	–	+0.0050/ -0.0010	–	–	–
85	Pulley - MS20219-A2	17	AF	0.2500	–	+0.0000/ -0.0005	–	–	–
86	Bolt - AN4-10	17	AF	–	0.2490	–	+0.0100/ -0.0100	–	–
87	Bracket - 2331516-3	17	AG	0.2500	–	+0.0050/ -0.0010	–	–	–
88	Pulley - MS20219-A2	17	AG	0.2500	–	+0.000/ -0.0005	–	–	–
89	Bolt - AN4-10	17	AG	–	0.2490	–	+0.0010/ -0.0010	–	–
90	Fork - 2331519-8, -19	17	AH	0.1890	–	+0.0050/ -0.0010	–	–	–

Elevator System - Allowable Wear and Repair Data
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WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
91	Pin, Clevis - MS20392-2C19	17	AH	–	0.1380	–	+0.0000/ -0.0020	–	–
92	Fork, Turnbuckle - NAS645-16RL	29	AJ	–	0.1900	–	+0.0100/ -0.0100	–	–
	Eye - Turnbuckle - NAS648-16RL (Alt. MS21254-3RL)	30	AJ	0.1900	–	+0.0010/ -0.0010	–	–	–
93	Link - 2431110-2	30	AJ	0.1930	–	+0.0010/ -0.0010	–	–	–
94	Eye - Turnbuckle - NAS648-16RL (Alt. MS21254-3RL)	30	AJ	0.1900	–	+0.0010/ -0.0010	–	–	–
95	Pin, Clevis - MS20392-2C19	30	AJ	–	0.1380	–	+0.0000/ -0.0020	–	–
96	Angle, Attach - 2331006-49	16	AK	0.3747	–	+0.0015/ -0.0000	–	–	–
97	Bushing - NAS77-6-22	14	AL	0.3750	0.5013	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
98	Bolt - NAS464P6-22	14	AK, AL	–	0.3742	–	+0.0000/ -0.0009	–	–
	NAS464P6-17	15	AK, AL	–	0.3742	–	+0.0000/ -0.0009	–	–
99	Bushing - NAS77-6-25	14	AL	0.3750	0.5013	+0.0015/ -0.0000	+0.0000/ -0.0007	–	–
100	Bolt - NAS464P6-23	14	AM, AN	–	0.3742	–	+0.0000/ -0.0009	–	–
	NAS464P6-22	15	AM, AN	–	0.3742	–	+0.0000/ -0.0009	–	–
101	Bracket Assy. - 2331050-1	14	AM	0.3747	–	+0.0015/ -0.0000	–	–	–
102	Bolt - NAS464P6-17	15	AK	–	0.3742	–	+0.0000/ -0.0009	–	–
103	Bolt - NAS464P6-22	15	AM	–	0.3742	–	+0.0000/ -0.0009	–	–
104	Bolt - NAS464P4-10	18	R	–	0.2492	–	+0.0010 -0.0010	–	–
105	Bolt - NAS464P4-9	18	AK	–	0.2492	–	+0.0010 -0.0010	–	–
106	Frame Assy, Down-spring - 2531542-1, -7	19	AK	0.2492	–	+0.0010/ -0.0000	–	–	–
			AL	0.2725	–	+0.0010/ -0.0000	–	–	–

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 20 of 29)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
			AM	0.5650	–	+0.0010/ -0.0000	–	–	–
	2531542-13, -16	20	AK	0.2492	–	+0.0010/ -0.0000	–	–	–
			AL	0.2725	–	+0.0010/ -0.0000	–	–	–
			AM	0.5626	–	+0.0002/ -0.0002	–	–	–
	2531542-17	21	AK	–	0.2492		+0.0000/ -0.0009	–	–
			AL	0.2725	–	+0.0010/ -0.0000	–	–	–
			AM	0.5626	–	+0.0002/ -0.0002	–	–	–
107	Bolt - AN23-42	21	AN	–	0.1860	–	+0.0010/ -0.0000	–	–
108	Bolt - AN23-15	23	AL	–	0.1860	–	+0.0010/ -0.0000	–	–
109	Drawbar - 2531534-1	24	AO	0.5310	–	–	–	–	–
			AP	0.2485	–	+0.0010/ -0.0000	–	–	–
	2531534-6	25	AO	0.5310	–	–	–	–	–
			AP	0.2500	–	+0.0010/ -0.0000	–	–	–
110	Bushing - 2531534-4	24	AP	0.1870	0.2485	+0.0005/ -0.0005	+0.0010/ -0.0000	–	–
	2531534-5	25	AP	0.1870	0.2500	+0.0005/ -0.0000	+0.0000/ -0.0010	–	–
111	Retainer, Fwd - 2531536-2	24	AQ	0.5310	–	–	–	–	–
	2531548-1	26	AR	0.6250	–	+0.0020/ -0.0000	–	–	–
112	Retainer, Aft - 2531536-2	24	AS	0.5310	–	–	–	–	–
	2531548-1	26	AT	0.6250	–	+0.0020/ -0.0000	–	–	–
113	Drawbolt - 2531535-1, -4	28	AU AO AR AQ	0.2485	0.5000	+0.0010/ -0.0000	–	–	–
114	Bushing - 2531535-3	28	AU	0.1870	0.2485	+0.0005 -0.0005	+0.0010/ -0.0000	–	–
115	Stud - 2631515-1	31	AV	–	0.2492	–	+0.0000/ -0.0009	–	–

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 21 of 29)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Bellcrank Assy. - 2331511-15, -16, -33, -34, -45, -46, -61, -62, -83, -84, -101, -102, -801, -802	1	A, B, C, D	Replace worn part.
2	Bearing - MS27645-4A	1	A	Replace worn part. Stake new bearing in wet primer or secure with Loctite. (Refer to 51-70-00.)
3	Pin - HL 18-8-9	2	A	Replace worn part.
	Bolt - 23311511-87	3	A	Replace worn part.
4	Bolt - NAS464P4A-32	4	B, C	Replace worn part.
	NAS464P4A-30	5	B, C	Replace worn part.
	SB410F4-28S	6	B, C	Replace worn part.
5	Torque Tube - 2434003-7	1	B, C	Replace worn part.
6	Bearing - BLFR-4-045	1	D	Replace worn part. Stake new bearing in wet primer or secure with Loctite. (Refer to 51-70-00.)
7	Bolt - NAS464P4-14	1	D	Replace worn part.
8	Rod End Clevis - 2331510-75	7	D	Replace worn part.
	2331510-31	8	D	Replace worn part.
9	Hinge Assy. - 2332018-16, -20, -22	1	E	Replace worn part.
10	Bearing - AN201KP4A	1	E	Replace worn part.
11	Bolt - AN4H11A	1	E	Replace worn part.
12	Hinge Assy. - 2332013-19, -22, -24	1	F	Replace worn part.
13	Bearing - AN201KP4A	1	F	Replace worn part.
14	Bolt - AN4H11A	1	F	Replace worn part.
15	Bearing Rod End - 2331510-28	1	G	Replace worn part.
16	Bearing - AN200KS-4	1	G	Replace worn part. Secure new bearing with Loctite. (Refer to 51-70-00.) After cure, subject assembly to a push out proof load of 300 pounds.
	(Alt. MS27645-4)	1	G	Replace worn part. Secure new bearing with Loctite. (Refer to 51-70-00.) After cure, subject assembly to a push out proof load of 300 pounds.
17	Yoke - 2331512-2	9	G, H, J	Replace worn part.
	2331517-2	10	G, H, J	Replace worn part.
	2531533-1	11	G, H, J	Replace worn part.
	2531533-5	12	G, H, J	Replace worn part.
	2631508-2	13	G, H, J	Replace worn part.
18	Bolt - NAS464P4-35	1	G	Replace worn part.
19	Cable Fitting - 2631509-1	1	H,K	Replace worn part.
	(Alt. 2631509-2)	1	H,K	Replace worn part.
20	Hinge Bracket - 2331510-17	1	J	Replace worn part.

Elevator System - Allowable Wear and Repair Data
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REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
21	Bolt - NAS464P4-9	1	J	Replace worn part.
22	Down-spring Frame Brkt - 2531539-1	1	L	Replace worn part.
23	Bolt - AN23-13	1	L	Replace worn part.
24	Down-spring Frame - 2631507-1, -8, 10, -12, -16	13	L, M, N	Replace worn part.
25	Bearing - F3DD	22	L	Replace worn part. Install new bearing with flange inboard and secure with Loctite. (Refer to 51-70-00.)
26	Bushing - 2631507-6	13	N	Replace worn part. Install new bushings with flange inboard and secure with Loctite (refer to 51-70-00), and line ream 0.1895 (+0.0010/ -0.0000).
27	Stud - 2631515-5	17	M	Replace worn part.
28	Bolt - AN23-16	13	N	Replace worn part.
29	Drawbar - 2631503-4, -6	13	P, Q	Replace worn part.
30	Bushing - 2631503-3	13	Q	Replace worn part. Install new bushings with Loctite (refer to 51-70-00), and ream in line after cure to 0.2500 (+0.0010/-0.0000).
31	Down-spring Retainer - 2631505-2 (Alt. 2631505-4)	13	P	Replace worn part.
32	Down-spring Retainer - 2631505-1	13	P	Replace worn part.
33	Bushing - 2631505-3	27	P AS AT	Replace worn part.
34	Drawbolt - 2631504-1, -2	13	N, P	Replace worn part.
	2631504-2	11	N, P	Replace worn part.
35	Stud - 2631515-5	13	R	Replace worn part.
36	Bearing Rod End - 2531538-3	17	R	Replace worn part.
37	Bearing Rod End - HMVV-4	13	M	Replace worn part.
38	Clevis Rod End - 2331510-32	13	S	Replace worn part.
39	Bolt - NAS464P4-11	13	S	Replace worn part.
40	Sector Assy. - 2315147-2	33	S, T	Replace worn part.
41	Bearing - MS27645-4A (Alt. KS4A) (Alt. AN200KS4A)	32	S	Replace worn part. Secure new bearing with Loctite. (Refer to 51-70-00.)
42	Bearing - B-540-ZZ	1	T	Replace worn part. Secure new bearing with Loctite. (Refer to 51-70-00.)
	DPP-6	1	T	Replace worn part. Secure new bearing with Loctite. (Refer to 51-70-00.)

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REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
43	Bolt - AN6-17	34	T	Replace worn part.
	NAS464P6-21, -22	35	T	Replace worn part.
44	Bracket - 2331006-11, -12, -18, -19, -25, -26, -49, -50,	41	T	Replace worn part.
	2331006-60, -61	42	T	Replace worn part.
45	Pulley - MS20220A1	36	U	Replace worn part.
46	Bracket - 2615114-4	36	U	Replace worn part.
47	Bolt - AN25-17	36	U	Replace worn part.
48	Pulley - MS20220A2	36	V	Replace worn part.
49	Bracket - 2615115-1	36	V	Replace worn part.
50	Bolt - AN25-17	36	V	Replace worn part.
51	Pulley - MS20220-2	37	W	Replace worn part.
	MS20220A2	38	W	Replace worn part.
52	Bracket - 2512500-24	39	W	Replace worn part.
	2615119-1	40	W	Replace worn part.
53	Bracket - 2512500-22	39	W	Replace worn part.
	2615112-2	40	W	Replace worn part.
54	Bracket - 2512500-23	39	W	Replace worn part.
	2615113-1	40	W	Replace worn part.
55	Bolt - AN25-27	36	W	Replace worn part.
56	Pulley - MS20220A2	1	X	Replace worn part.
	MS20220-2			
57	Bracket - 2512500-5, -6, -7, -8, -11, -12, -42, -44, -55, -56, -57, -58	1	X	Replace worn part.
58	Bolt - NAS464P5-44, -23	1	X	Replace worn part.
59	Pulley - MS20220A2	1	Y	Replace worn part.
60	Bracket - 2512500-27, -28	4	Y	Replace worn part.
	2488510-4, -5	5	Y	Replace worn part.
	2488510-4, -5	6	Y	Replace worn part.
	2512500-6, -17, -18, -33, -34, -39, -40, -47	7	Y	Replace worn part.
61	Bolt - NAS464P5-44, -23	1	Y	Replace worn part.
62	Pulley - MS20220A1	1	Z	Replace worn part.
63	Bracket - 2312500-34, -35, -36	1	Z	Replace worn part.
64	Bolt - NAS464P5-22	1	Z	Replace worn part.
65	Pulley - MS20220-2	1	AA	Replace worn part.
65A	Bolt - AN5-24-25	1	AA	Replace worn part.
66	Sector Assy. - 2315147-1, -9	1	AB	Replace worn part.
67	Bearing - B-540-ZZ	1	AB	Replace worn part. Install new bearing and secure with Loctite. (Refer to 51-70-00.)
68	Bearing - MS21233-5 (Alt. LHBVV-5M) (Alt. RSST-5)	1	AC	Replace worn part. Install new bearing and secure with Loctite. (Refer to 51-70-00.)

Elevator System - Allowable Wear and Repair Data
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REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
69	Bolt - NAS464P4-9, -12	43	AC	Replace worn part.
	NAS464P5-12	44	AC	Replace worn part.
70	Clevis Rod End - 2315121-14, -33	43	AC	Replace worn part.
	2314168-5	44	AC	Replace worn part.
71	Bearing Rod End -			
	2315121-13, -33	43	AD	Replace worn part.
	RE5M6	44	AD	Replace worn part.
	(Alt. REP5M6FS464)	44	AD	Replace worn part.
	(Alt. MS21151-10)	44	AD	Replace worn part.
72	Bolt - NAS464P4-9, -12	43	AD	Replace worn part.
	NAS464P5-27, -32	44	AD	Replace worn part.
73	Bushing - NAS75-5-13, -018	44	AD	Replace worn part.
74	Bushing - NAS77-5-013	44	AE	Replace worn part.
75	Yoke Assembly - 2415152-1, -3	45	AD, AE,	Replace worn part.
	(Alt. 2415152-5)			
	2615270-1	46	AD, AE, AF, AG	Replace worn part.
76	Bolt - NAS464P4-15, -17	48	AF	Replace worn part.
	NAS464P4-19, -26			
77	Bearing Rod End - SM4-6D-1	48	AF	Replace worn part.
	(Alt. RM4B)			
	(Alt. RM4BH)			
78	Bolt - NAS464P4-10	48	AG	Replace worn part.
79	Bushing - NAS75-4-10	48	AF	Replace worn part.
	NAS77-4-27			
80	Servo Cable - 2300003-256	1	K	Replace worn part.
81	Bolt - NAS464P3-7	1	K	Replace worn part.
82	Bolt - NAS1104-48D	1	H	Replace worn part.
83	Turnbuckle - 2631511-1	1	H	Replace worn part.
84	Bracket - 2331516-2, -17, -18,	17	AF	Replace worn part.
	-20, -21			
85	Pulley - MS20219-A2	17	AF	Replace worn part.
86	Bolt - AN4-10	17	AF	Replace worn part.
87	Bracket - 2331516-3	17	AG	Replace worn part.
88	Pulley - MS20219-A2	17	AG	Replace worn part.
89	Bolt - AN4-10	17	AG	Replace worn part.
90	Fork - 2331519-8, -19	17	AH	Replace worn part.
91	Pin, Clevis - MS20392-2C19	17	AH	Replace worn part.
92	Fork, Turnbuckle - NAS645-16RL	29	AJ	Replace worn part.
	Eye, Turnbuckle - NAS648-16RL	30	AJ	Replace worn part.
	(Alt. MS21254-3RL)			

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 25 of 29)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
93	Link - 2431110-2	30	AJ	Replace worn part.
94	Eye, Turnbuckle - NAS648-16RL (Alt. MS21254-3RL)	30	AJ	Replace worn part.
95	Pin, Clevis - MS20392-2C19	30	AJ	Replace worn part.
96	Angle, Attach - 2331006-49	16	AK	Replace worn part.
97	Bushing - NAS77-6-22	14	AL	Replace worn part.
98	Bolt - NAS464P6-22	14	AK, AL	Replalce worn part.
	NAS464P6-17	15	AK, AL	Replace worn part.
99	Bushing - NAS77-6-25	14	AK, AL	Replace worn part.
100	Bolt - NAS464P6-23	14	AM, AN	Replace worn part.
	NAS464P6-22	15	AM, AN	Replace worn part.
101	Bracket Assy. - 2331050-1	14	AM	Replace worn part.
102	Bolt - NAS464P6-17	15	AK	Replace worn part.
103	Bolt - NAS464P6-22	15	AM	Replace worn part.
104	Bolt - NAS464P4-10	18	R	Replace worn part.
105	Bolt - NAS464P4-9	18	AK	Replace worn part.
106	Frame Assy, Down Spring - 2531542-1, -7	19	AK, AL AM	Replace worn part.
	2531542-13, -16	20	AK, AL AM	Replace worn part.
	2515542-17	21	AK, AL AM	Replace worn part.
107	Bolt - AN23-42	21	AN	Replace worn part.
108	Bolt - AN23-15	23	AL	Replace worn part.
109	Drawbar- 2531534-1	24	AO, AP	Replace worn part.
	2531534-6	25	AO, AP	Replace worn part.
110	Bushing - 2531534-4	24	AP	Replace worn part.
	2531534-5	25	AP	Replace worn part.
111	Retainer, Fwd - 2531536-2	24	AQ	Replace worn part.
	2531548-1	26	AR	Replace worn part.
112	Retainer, Aft - 2531536-2	24	AS	Replace worn part.
	2531548-1	26	AT	Replace worn part.
113	Drawbolt - 2531535-1, -4	28	AU, AO AR, AQ	Replace worn part.
114	Bushing - 2531535-3	28	AU	Replace worn part.
115	Stud - 2631535-1	31	AV	Replace worn part.

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 26 of 29)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 and Subsequent Except When Modified by SSK 995, "Installation of Spare Elevator - Aircraft Equipped for 45,000 Foot Operation"; 25-001 and Subsequent Except When Modified by SSK 995, "Installation of Spare Elevator - Aircraft Equipped for 45,000 Foot Operation"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-020; 35-001 thru 35-659; 36-001 thru 36-063
3	24-100 and Subsequent When Modified by SSK 995, "Installation of Spare Elevator - Aircraft Equipped for 45,000 Foot Operation"; 25-001 and Subsequent When Modified by SSK 995, "Installation of Spare Elevator - Aircraft Equipped for 45,000 Foot Operation" 31-021 and Subsequent; 35-060 and Subsequent; 36-064 and Subsequent
4	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 thru 35-421; 36-001 thru 36-048
5	31-001 and Subsequent; 35-422 and Subsequent and All 23, 24, 25, 28, 29, 31 and 35 Series Aircraft Modified Per SSK 995, "Installation of Spare Elevator - Aircraft Equipped for 45,000 Foot Operation"
6	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent
7	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent
8	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
9	23-001 thru 23-099; 24-100 thru 24-121, 24-123 thru 24-132 and 24-134 thru 24-139
10	24-122, 24-133, 24-140 and Subsequent; 25-001 thru 25-060 and 25-062 thru 25-066
11	25-061, 25-067 thru 25-125
12	25-126 and Subsequent
13	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
14	24-100 thru 24-129
15	24-130 and Subsequent
16	24-100 and Subsequent
17	25-061, 25-064, 25-067 and Subsequent and Prior Aircraft Modified by AAK 70-05B, "Automatic Flight Control Stability System and Trim Augmenter Installation" or AAK 76-04A, "Reduced Approach Speed System"; 28-001 and Subsequent; 29-001 and Subsequent; 31-000 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
18	25-061, 25-064, 25-067 thru 25-224 and 25-226 and Prior Aircraft Modified by AAK 70-05B, "Automatic Flight Control Stability System and Trim Augmenter Installation" or AAK 76-04A, "Reduced Approach Speed System" Except When Modified by AMK 77-09A, "Installation of Dual Elevator Up/Down-spring Secondary Pushrods"
19	25-061, 25-067 thru 25-182
20	25-183 thru 25-224
21	25-225, 25-227 and Subsequent and Prior Aircraft Modified by AAK 70-05B, "Automatic Flight Control Stability System and Trim Augmenter Installation" or AAK 76-04A, "Reduced Approach Speed System" or AMK 77-09A, "Installation of Dual Elevator Up/Down-spring Secondary Pushrods"
22	25-225, 25-227 and Subsequent and Prior Aircraft Modified by AAK 70-05B, "Automatic Flight Control Stability System and Trim Augmenter Installation" or AAK 76-04A, "Reduced Approach Speed System" or AMK 77-09A, "Installation of Dual Elevator Up/Down-spring Secondary Pushrods"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
23	25-061, 25-064, 25-067 and Subsequent and Prior Aircraft Modified by AAK 70-05B, "Automatic Flight Control Stability System and Trim Augmenter Installation" or AAK 76-04A, "Reduced Approach Speed System"

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 27 of 29)

CODES	EFFECTIVITIES
24	25-061, 25-067 thru 25-253
25	25-254 and Subsequent
26	25-254 and Subsequent and Prior Aircraft Modified by SSK 960, "Replacement of Elevator Up/Down-spring Drawbolt and Retainer"
27	25-254 and Subsequent and Prior Aircraft Modified by SSK 960, "Replacement of Elevator Up/ Downspring Drawbolt and Retainer"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
28	25-061, 25-067 and Subsequent
29	24-140 thru 24-217 and 24-219 thru 24-229 Except When Modified by SB 31-32-2, Installation of Digital Nose Wheel Steering"; 25-002 thru 25-060, 25-062 thru 25-067, 25-070, 25-074 and 25-075 Except When Modified by SB 31-32-2, Installation of Digital Nose Wheel Steering"
30	24-218, 24-230 and Subsequent and 24-140 thru 24-217, 24-219 thru 24-229 When Modified by SB 31-32-2, Installation of Digital Nose Wheel Steering"; 25-064, 25-071 thru 25-073, 25-076 and Subsequent and Prior Aircraft Modified by SB 31-32-2, Installation of Digital Nose Wheel Steering"
31	25-225, 25-227 and Subsequent
32	23-001 thru 23-069
33	23-070 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
34	23-001 thru 23-099; 24-100 thru 24-357; 25-001 thru 25-301; 28-001 thru 28-005; 29-001 thru 29-002; 35-001 thru 35-296; 36-001 thru 36-044
35	24-358 and Subsequent; 25-302 and Subsequent; 28-006 and Subsequent; 29-003 and Subsequent; 31-001 and Subsequent; 35-297 and Subsequent; 36-045 and Subsequent
36	24-306 thru 24-308, 24-323 and Subsequent; 25-196, 25-202 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-046 and Subsequent; 36-017 and Subsequent
37	23-001 thru 23-099; 24-100 and Subsequent
38	25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
39	25-001 thru 25-201 Except 25-196
40	25-196, 25-202 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
41	23-001 thru 23-099; 24-100 thru 24-356, 25-001 thru 25-372, 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-027
42	24-357 and Subsequent; 25-373 and Subsequent; 31-028 and Subsequent; 35-664 and Subsequent; 36-001 and Subsequent
43	23-001 thru 23-010, 23-013, 23-014, 23-016 thru 23-018, 23-020 thru 23-030, 23-032 thru 23-042, 23-044 thru 23-049, 23-050a, 23-052 thru 23-054, 23-056 thru 23-059, 23-061 thru 23-064, 23-065a thru 23-086, 23-088 thru 23-095, 23-097 thru 23-099
44	23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-055, 23-060, 23-065, 23-087, and 23-096; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
45	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 thru 35-487; 36-001 thru 36-050
46	31-001 and Subsequent; 35-488 and Subsequent; 36-051 and Subsequent
47	24-122, 24-133, 24-140 and Subsequent and Prior Aircraft Equipped With Elevator Bob Weight; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent, 35-001 and Subsequent; 36-001 and Subsequent

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 28 of 29)

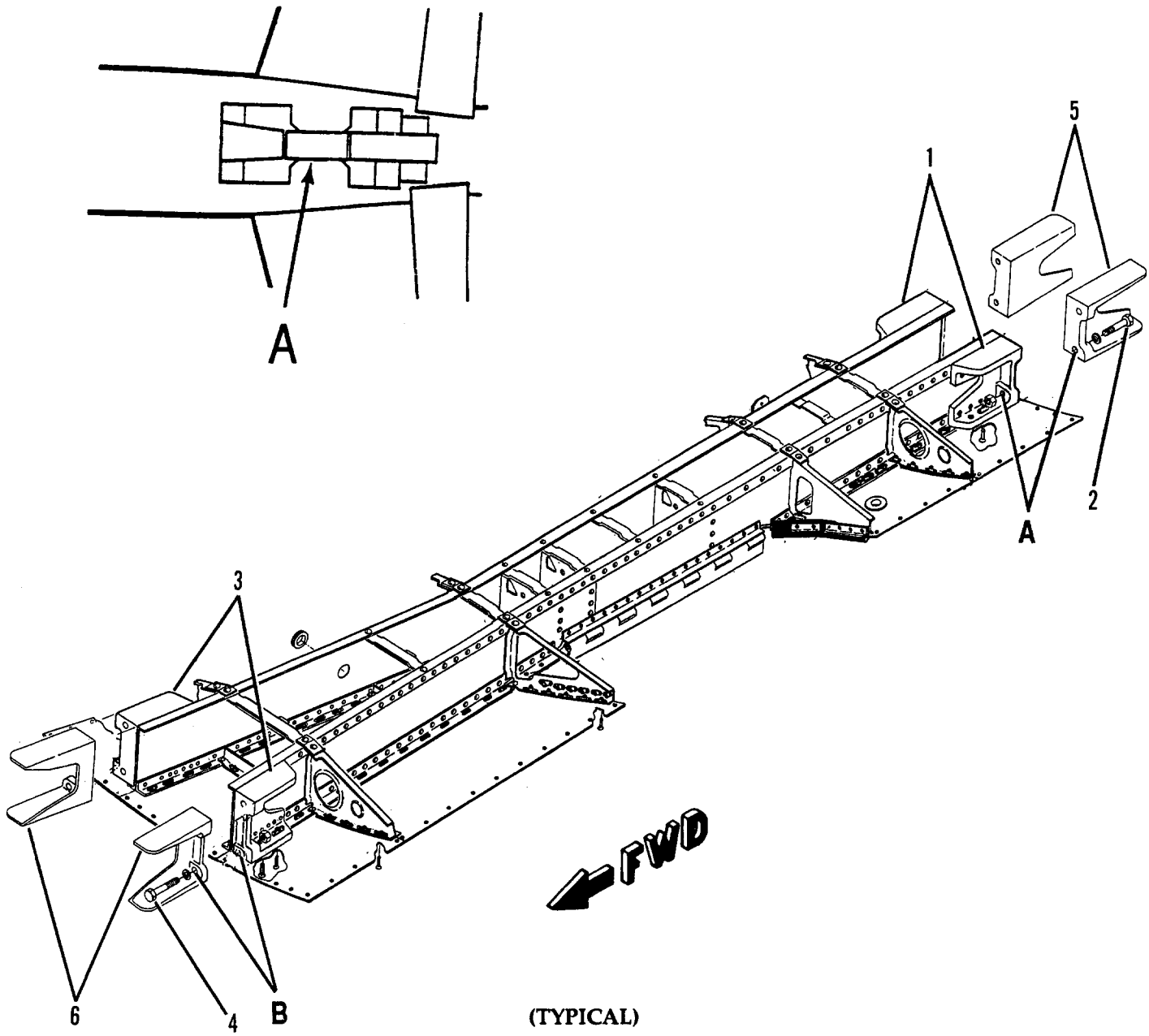
48	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-076; 35-001 thru 35-676; 36-001 thru 36-063
49	*31-077 and Subsequent; 35-677 and Subsequent; 36-064 and Subsequent*

NOTES:

▷1 When replacement of the NAS464P4A-30 and the NAS464P4A-32 bolt is required, the following should be used:

1. NAS6604-30 or NAS6604-32 should be used when an oversized bolt is not required.
2. NAS6604-30X or NAS6604-32X should be used when an 1/64 inch oversized bolt is required.
3. NAS6604-30Y or NAS6604-32Y should be used when an 1/32 inch oversized bolt is required.

Elevator System - Allowable Wear and Repair Data
Figure 1 (Sheet 29 of 29)



(TYPICAL)

Detail A

(UNDERWING KEELBEAM)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Fitting, Underwing Keelbeam Aft LH/RH - 2311611-5, -6	1	A	0.3120	–	+0.0060/ -0.0010	–	–	–
2	Bolt - MS20005-14	1	A	–	0.3102	–	+0.0015/ -0.0000	–	–
3	Fitting, Underwing Keelbeam Fwd LH/RH - 2311611-7, -8	1	B	0.3120		+0.0060/ -0.0010	–	–	
4	Bolt - MS20005-36	1	B	–	0.3102	–	+0.0015/ -0.0000	–	–
5	Fitting, Aft Keelbeam, LH/RH - 2312018-1, -2	1	A	0.3120	–	+0.0060/ -0.0010	–	–	–
6	Fitting, Fwd Fuselage Keelbeam, LH/RH - 2311241-1	1	B	0.3120	–	+0.0060/ -0.0010	–	–	–

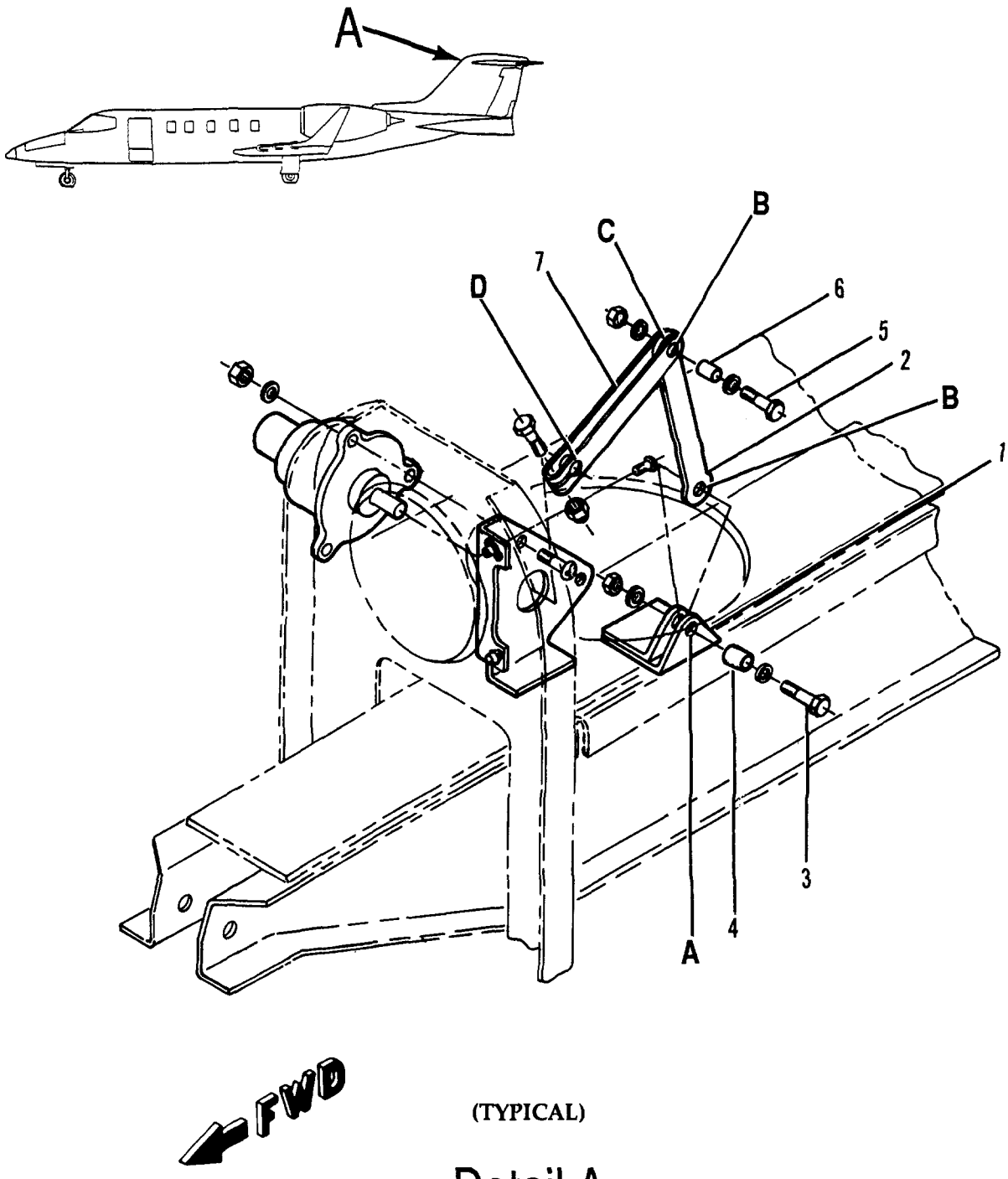
Keelbeam Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Fitting, Underwing Keelbeam, Aft LH/RH - 2311611-5, -6	1	A	Replace worn part.
2	Bolt - MS20005-14	1	A	Replace worn part.
3	Fitting, Underwing Keelbeam, Fwd LH/RH – 2311611-7, -8	1	B	Replace worn part.
4	Bolt - MS20005-36	1	B	Replace worn part.
5	Fitting, Aft Keelbeam, LH/RH - 2312018-1, -2	1	A	Replace worn part.
6	Fitting, Fwd Fuselage Keelbeam, LH/RH - 2311241-1	1	B	Replace worn part.

CODES	EFFECTIVITIES
1	23-002 thru 23-099; 24-100 thru 24-357; 25-002 thru 25-373; 28-001 thru 28-004; 29-001 thru 29-004; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Keelbeam Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)



(TYPICAL)

Detail A

8-73B

Mach Trim System - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Bracket Assy., - 2605206-2, -7	1	A	0.1895	–	+0.0010/ -0.0000	–	–	–
							–	–	–
2	Link - 2605206-5	1	B	0.3725	–	+0.0010/ -0.0000	–	–	–
							–	–	–
3	Bolt - NAS1103-6	1	A, B	–	0.1895	–	+0.0000/ -0.0010	–	–
4	Bushing - NAS74A3-003	1	A	0.1900	0.3730	+0.0010/ -0.0005	+0.0000/ -0.0020	–	–
								–	–
5	Bolt - NAS1103-4	1	B, C	–	0.1895	–	+0.0000/ -0.0010	–	–
6	Bushing - NAS74A3-003	1	B	0.1900	0.3730	+0.0010/ -0.0005	+0.0000/ -0.0020	–	–
								–	–
7	Arm, Mach Trim System - 2605206-4	1	C	0.1895	–	+0.0010/ -0.0000	–	–	–
			D	0.2500	–	+0.0040/ -0.0000	–	–	–

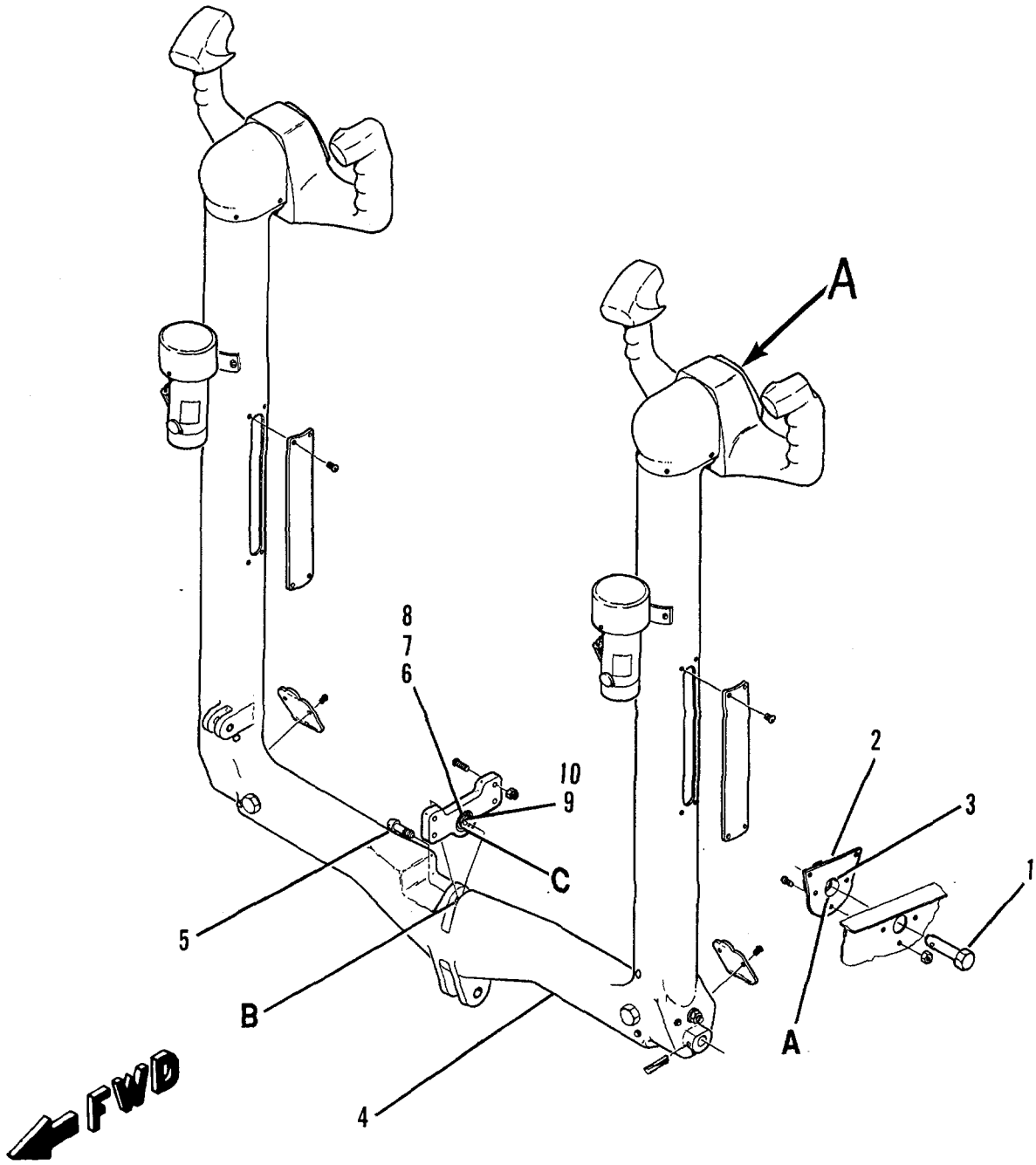
Mach Trim System - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Bracket Assy. - 2605206-2, -7	1	A	Install oversize bushing and ream bushing to original hole size. (Refer to 51-70-00.)
2	Link - 2605206-5	1	B	Install oversize bushing in place of bushing (4 or 6). Ream oversize bushing to original bushing I.D. (Refer to 51-70-00.)
3	Bolt - NAS1103-6	1	A, B	Replace worn part.
4	Bushing - NAS74A3-003	1	A	Replace worn part.
5	Bolt - NAS1103-4	1	B, C	Replace worn part.
6	Bushing - NAS74A3-003	1	B	Replace worn part.
7	Arm - 2605206-4	1	C	Replace worn part.

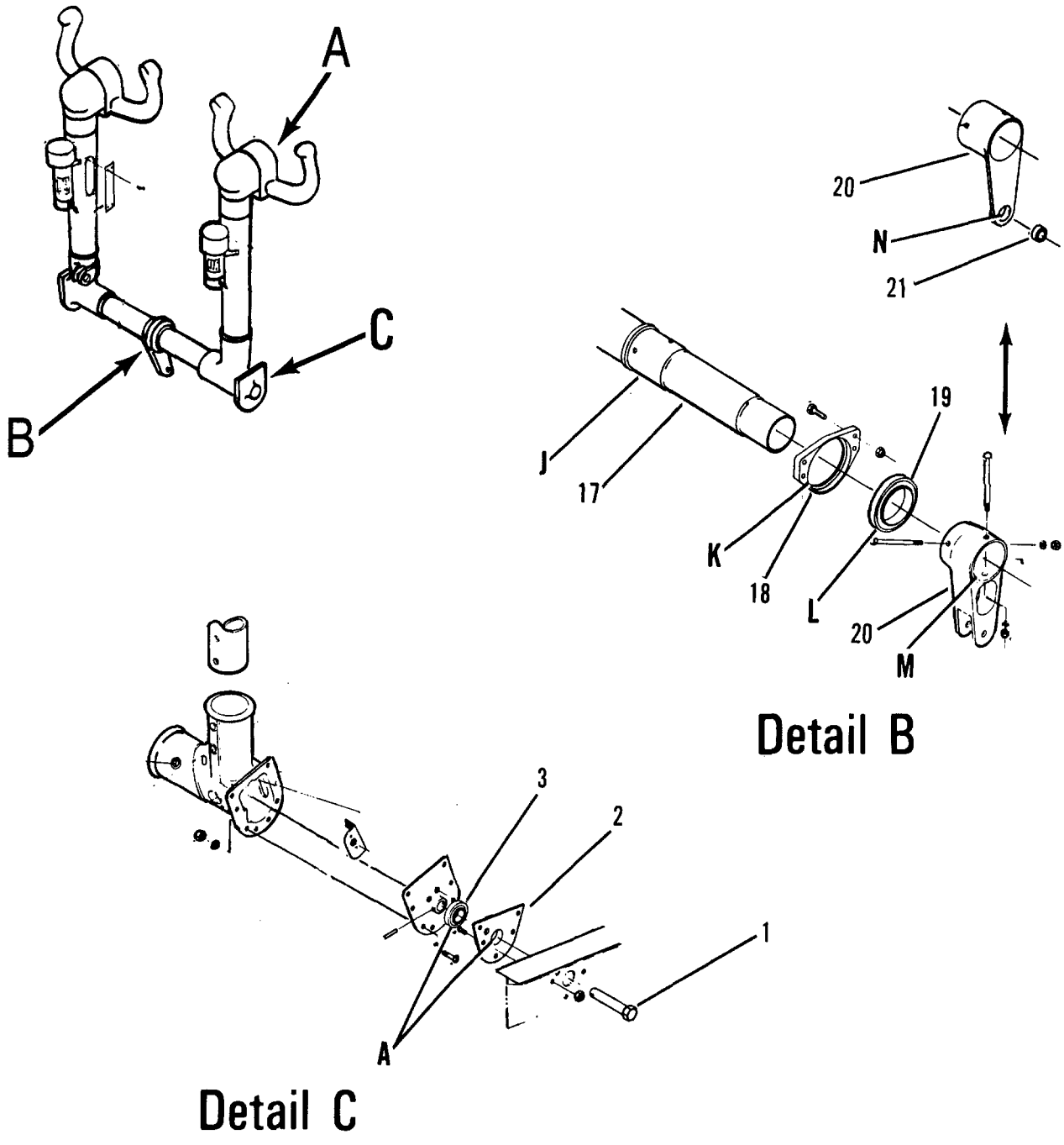
CODES	EFFECTIVITIES
1	28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Mach Trim System - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)



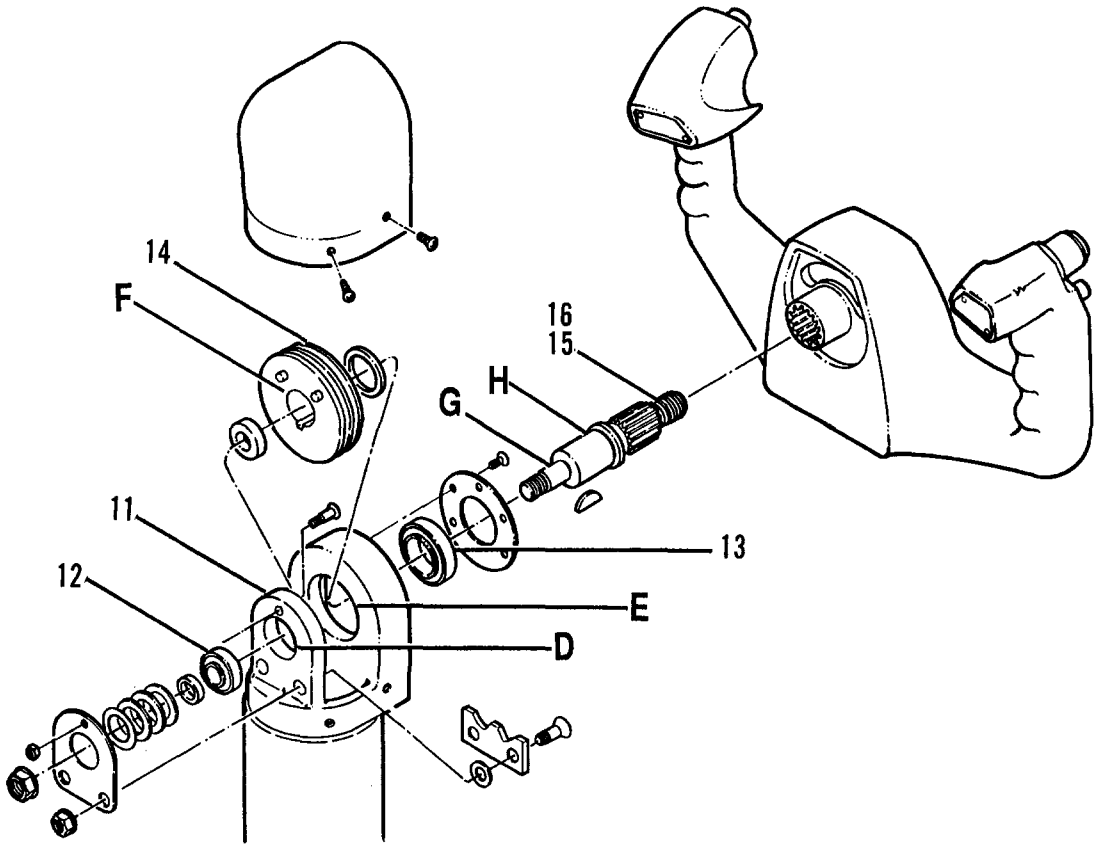
8-63C

Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 7)



8-63C

Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 7)



(TYPICAL)

Detail A

Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 7)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
1	Pin, Control Column Pivot - 2315152-9 (Alt. 2315152-33)	1	A	–	0.4995	–	+0.0000/ -0.0010	–	–
2	Block Assy., Bearing - 23151525, -6, -31	1	A	0.7500	–	+0.0100/ -0.0100	–	–	–
3	Bearing - MS27641KP8A (Alt. AN201KP8A)	1	A	0.5000	1.1250	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
4	Yoke Assy. - 2415152-1 (Alt. 2415152-3, -5)	2	B	0.3773	–	+0.0005/ -0.0005	–	–	–
	2615270-1	3	B	0.3773	–	+0.0005/ -0.0005	–	–	–
5	Bolt - MS20004H15	4	B, C	–	0.2485	–	+0.0070/ -0.0080	–	–
6	Bushing - NAS75-4-015	4	B	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
7	Bushing - NAS75-5-013	5	B	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS77-5-50	6	B	0.3125	0.4386	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
8	Bushing - NAS75-4-010	5	B	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
	NAS77-4-27	6	B	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
9	Block Assy., Bearing - 2415164-5	4	C	0.9002	–	+0.0005/ -0.0000	–	–	–
10	Bearing - MS27640KP4 (Alt. MS20200KP4)	4	C	0.2500	0.9014	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
11	Yoke Casting - ▷1 2315153-32	7	D	0.8750	–	+0.0100/ -0.0100	–	–	–
			E	1.1865	–	+0.0020/ -0.0000	–	–	–
	2315153-716-2	8	D	0.8750	–	+0.0100/ -0.0100	–	–	–
			E	1.1865	–	+0.0020/ -0.0000	–	–	–
	2315153-40	9	D	0.8750	–	+0.0100/ -0.0100	–	–	–
			E	1.1865	–	+0.0020/ -0.0000	–	–	–
	2315153-41	10	D	0.8750	–	+0.0100/ -0.0100	–	–	–
			E	1.1865	–	+0.0020/ -0.0000	–	–	–

Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 7)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
	2415152-8-495 2415152-9-495	11	D	0.8750	–	+0.0100/ -0.0100	–	–	–
			E	1.1865	–	+0.0020/ -0.0000	–	–	–
12	Bearing - MS27641KP6A (Alt. AN201KP6A)	1	D	0.3750	0.8750	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
13	Bearing - B-539-ZZ (Alt. B-539-DD)	1	E	0.7500	1.1875	+0.0007/ -0.0007	+0.0000/ -0.0010	–	–
14	Capstan Assy. - 2415160-3, -5, -7	12	F	0.7500	–	+0.0010/ -0.0000	–	–	–
15	Shaft, Main Control Wheel - 2315153-28	13	G	–	0.3740	–	+0.0002/ -0.0003	–	–
	2315153-5 (Alt. 2315153-49)	14	G	–	0.3740	–	+0.0002/ -0.0003	–	–
			H	–	0.7490	–	+0.0000/ -0.0010	–	
16	Shaft, Main Control Wheel - 2615271-1	15	G	–	0.3739	–	+0.0003/ -0.0002	–	–
			H	–	0.7485	–	+0.0005/ -0.0005	–	
17	Torque Tube - 2315151-2	16	J	–	1.9050	–	+0.0000 -0.0020	–	–
18	Block Assy., Bearing - 2315151-6	16	K	2.6250	–	+0.0010 -0.0000	–	–	–
19	Bearing - B-545-ZZ (Alt. B-545-DD)	16	K, L	2.0610	2.6250	+0.0005 -0.0005	+0.0010 -0.0000	–	–
20	Bellcrank - 2315151-4, -7	17	M	1.9050	–	+.0000 -0.0020	–	–	–
	2315154-1	18	M	1.9050	–	+.0000 -0.0020	–	–	–
	2315216-1	19	M	1.9050	–	+.0000 -0.0020	–	–	–
21	Bearing - LS4	20	N	2.2500	0.7500	–	–	–	–

Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 7)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Pin, Control Column Pivot - 2315152-9, -33	1	A	Replace worn part.
2	Block Assy, Bearing - 2315152-6, -31	1	A	Replace worn part.
3	Bearing - MS27641KP8A (Alt. AN201KP8A)	1	A	Replace worn part. Install new bearing with wet primer.
4	Yoke Assy - 2415152-1 (Alt. 2415152-3, -5)	2	B	Replace worn part.
	2615270-1	3	B	Replace worn part.
5	Bolt - MS20004H15	4	B, C	Replace worn part.
6	Bushing - NAS75-4-015	4	B	Replace worn part.
7	Bushing - NAS75-5-013	5	B	Replace worn part.
	NAS77-5-50	6	B	Replace worn part.
8	Bushing - NAS75-4-010	5	B	Replace worn part.
	NAS77-4-27	6	B	Replace worn part.
9	Block Assy, Bearing - 2415164-5	4	C	Replace worn part.
10	Bearing - MS27640KP4 (Alt. MS20200KP4)	4	C	Replace worn part. Install new bearing with wet primer.
11	Yoke Casting - 2315153-32	7	D, E	Replace worn part.
	2315153-716-2	8	D, E	Replace worn part.
	2315153-40	9	D, E	Replace worn part.
	2315153-41	10	D, E	Replace worn part.
	2415152-8-495	11	D, E	Replace worn part.
	2415152-9-495	11	D, E	Replace worn part.
12	Bearing - MS27641KP6A (Alt. AN201KP6A)	1	D	Replace worn part. Install new bearing with wet primer.
13	Bearing - B-539-ZZ (Alt. B-539-DD)	1	E	Replace worn part. Install new bearing with wet primer.
14	Capstan Assy - 2415160-3, -5, -7	12	F	Replace worn part.
15	Shaft, Main Control Wheel - 2315153-28	13	G, H	Replace worn part.
	2315153-5 (Alt. 2315153-49)	14	G, H	Replace worn part.
16	Shaft, Main Control Wheel - 2615271-1	15	G, H	Replace worn part.
17	Torque Tube - 2315151-2	16	I	Replace worn part.
18	Block Assy., Bearing - 2315151-6	16	J	Replace worn part.
19	Bearing - B-545-ZZ (Alt. B-545-DD)	16	K, L	Replace worn part.
20	Bellcrank - 2315151-4, -7	17	M	Replace worn part.
	2315154-1	18	M	Replace worn part.
	2315216-1	19	M	Repace worn part.
21	Bearing - LS4	20	N	Replace worn part.

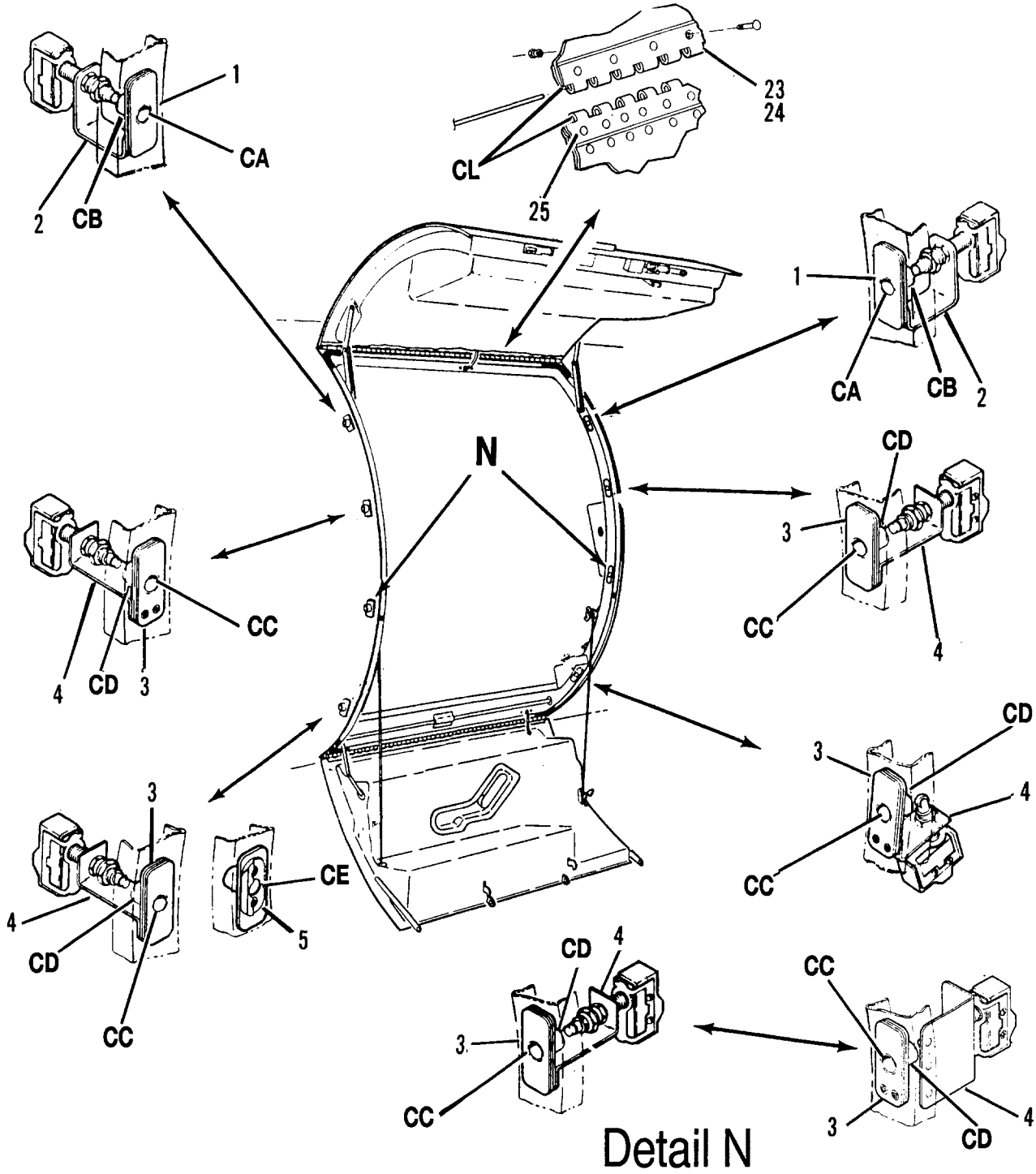
Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 7)

CODES	EFFECTIVITIES
1	23-00 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	24-247 and Subsequent and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-082 thru 25-360 and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 28-001 thru 28-005; 29-001 thru 29-003; 35-001 thru 35-487; 36-001 thru 36-050
3	25-361 and Subsequent; 28-006 and Subsequent; 29-004 and Subsequent; 31-001 and Subsequent; 35-488 and Subsequent; 36-051 and Subsequent
4	24-247 and Subsequent and Prior Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-082 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
5	24-247 and Subsequent; 25-187 and Subsequent; 28-001 thru 28-005; 29-001 thru 29-003; 35-018 thru 35-487; 36-009 thru 36-050
6	25-361 and Subsequent; 28-006 and Subsequent; 29-004 and Subsequent; 31-001 and Subsequent; 35-488 and Subsequent; 36-051 and Subsequent
7	23-001 thru 23-099; 24-100 thru 24-109 Except Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"
8	24-210 thru 24-169 Except Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"
9	25-001 thru 25-081 Except Aircraft Modified by AAK 76-04A, "Reduced Approach Speed System"
10	23-001 thru 23-099; 24-100 thru 24-109 When Modified by AAK 76-04A, "Reduced Approach Speed System"; 24-210 thru 24-169 When Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-001 thru 25-081 When Modified by AAK 76-04A, "Reduced Approach Speed System"
11	24-170 and Subsequent; 25-082 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
12	23-001 and Subsequent When Modified by A 2396003 Special Spares Kit; 24-100 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
13	23-001 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 24-100 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"
14	23-001 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 24-100 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 and Subsequent When Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 35-018 thru 35-487; 35-500, 35-502, 35-503, 35-505, 35-509 thru 35-567; 36-009 thru 36-060 and Prior Aircraft With 2315153-49 Shaft
15	23-001 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 24-100 and Subsequent Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 25-001 thru 25-081 Except Aircraft Modified by SSK 947A, "Replacement of Control Column Pulley and Shaft Assembly"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-488 thru 35-499, 35-501, 35-504, 35-506 thru 35-508, 35-568 and Subsequent; 36-061 and Subsequent
16	23-001 thru 23-099; 24-100 thru 24-246 Except When Modified by AAK 76-04A, "Reduced Approach Speed System"; 25-001 thru 25-081 Except When Modified by AAK 76-04A, "Reduced Approach Speed System"
17	23-001 and Subsequent
18	24-100 thru 24-152; 25-001 thru 25-016
19	23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-060, 23-065, 23-087, 23-096; 24-153 and Subsequent; 25-017 and Subsequent
20	23-001 and Subsequent Except 23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-060, 23-065, 23-087, 23-096

NOTES: 1 Machined finish

Control Column Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 7)

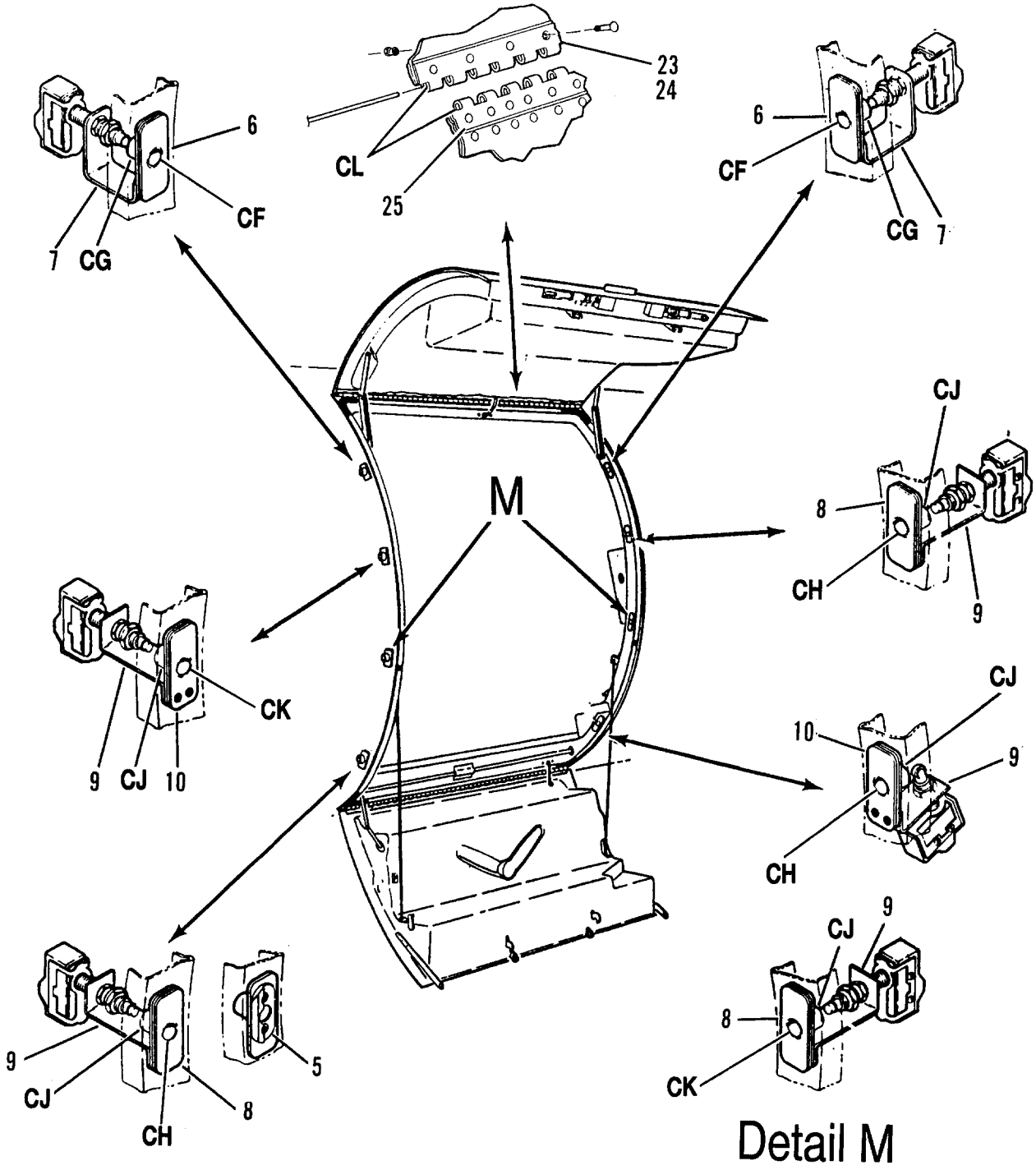
PASSENGER/CREW UPPER DOOR - ALLOWABLE WEAR AND REPAIR DATA



2-19C
2-91A-3
2-7B-1

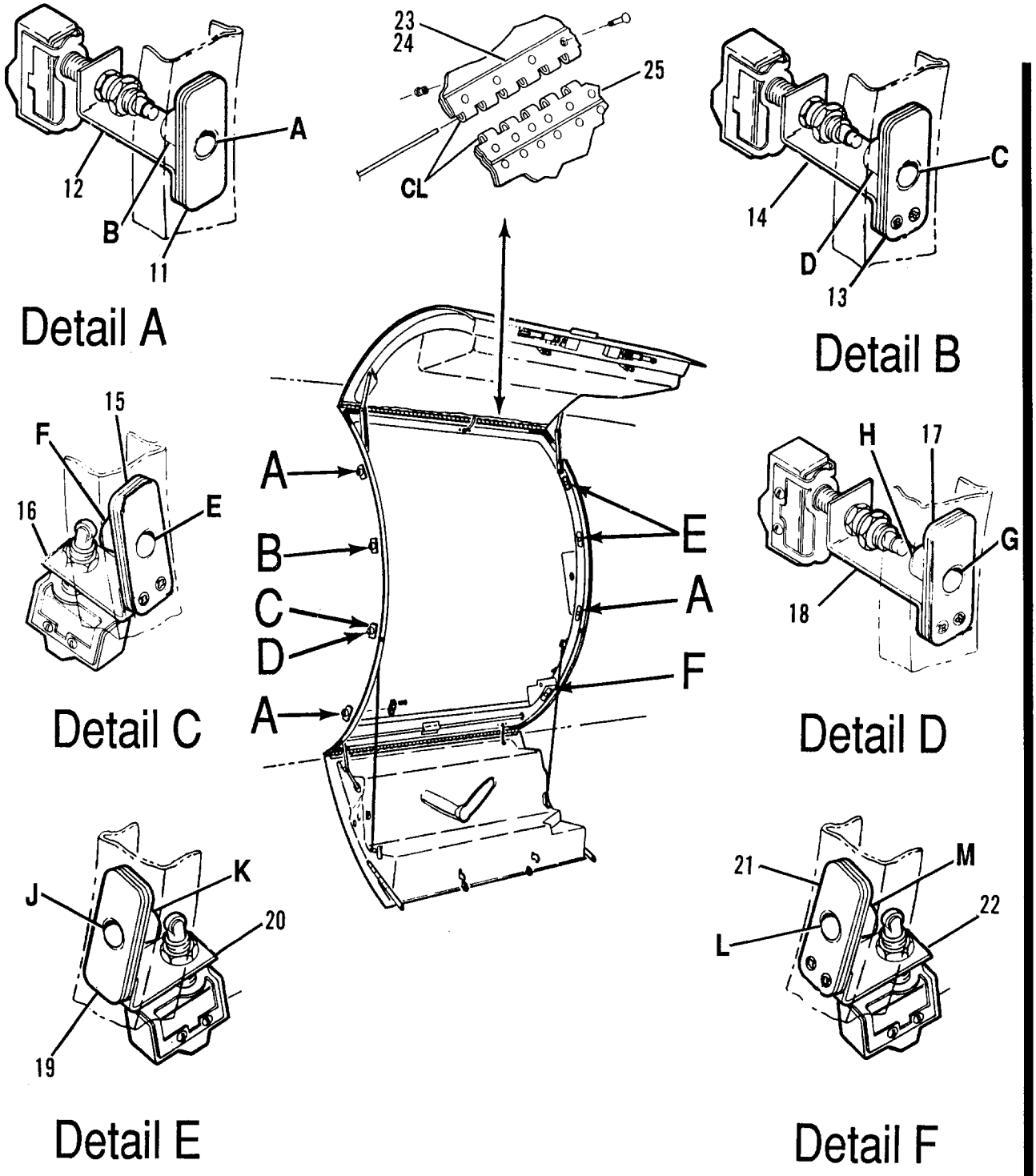
Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 24)

EFFECTIVITY: 23-001 THRU 23-099 EQUIPPED WITH 36-INCH PASSENGER/CREW DOOR



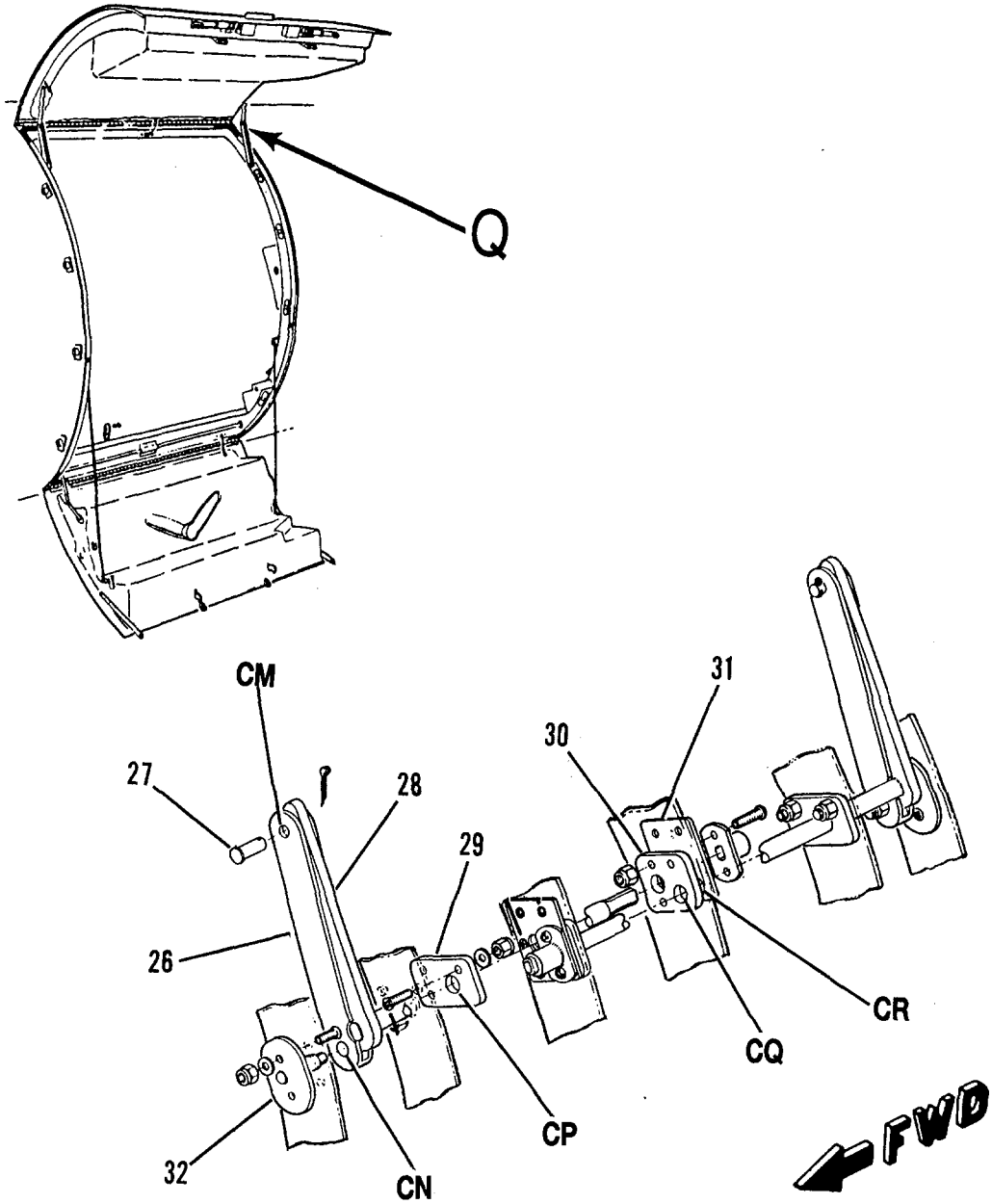
2-19C
2-7B-1

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 24)



2-7B-1

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 24)

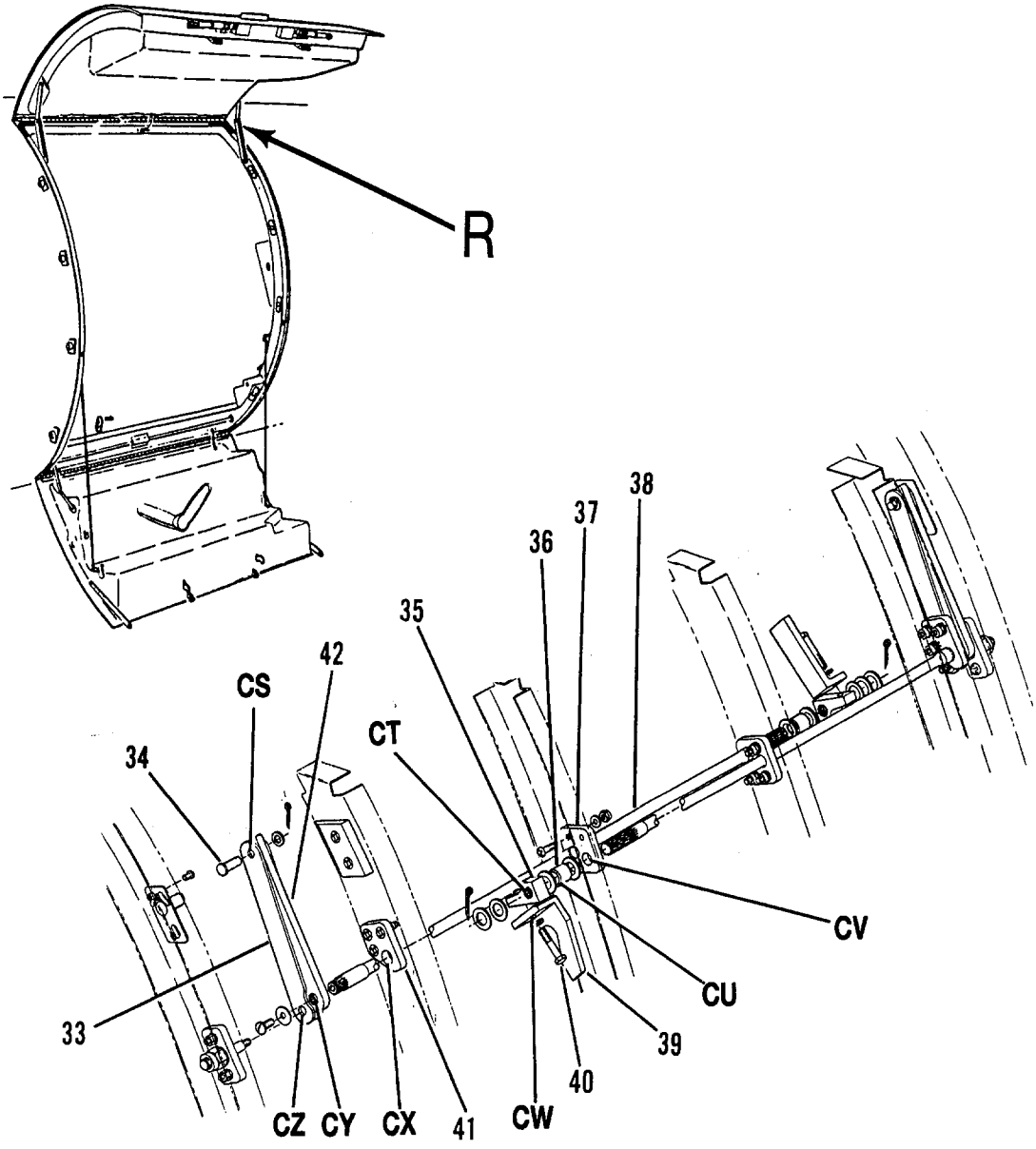


(23-001 thru 23-059 Equipped with 36-Inch Door, Except Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar")

Detail Q

2-27C

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 24)

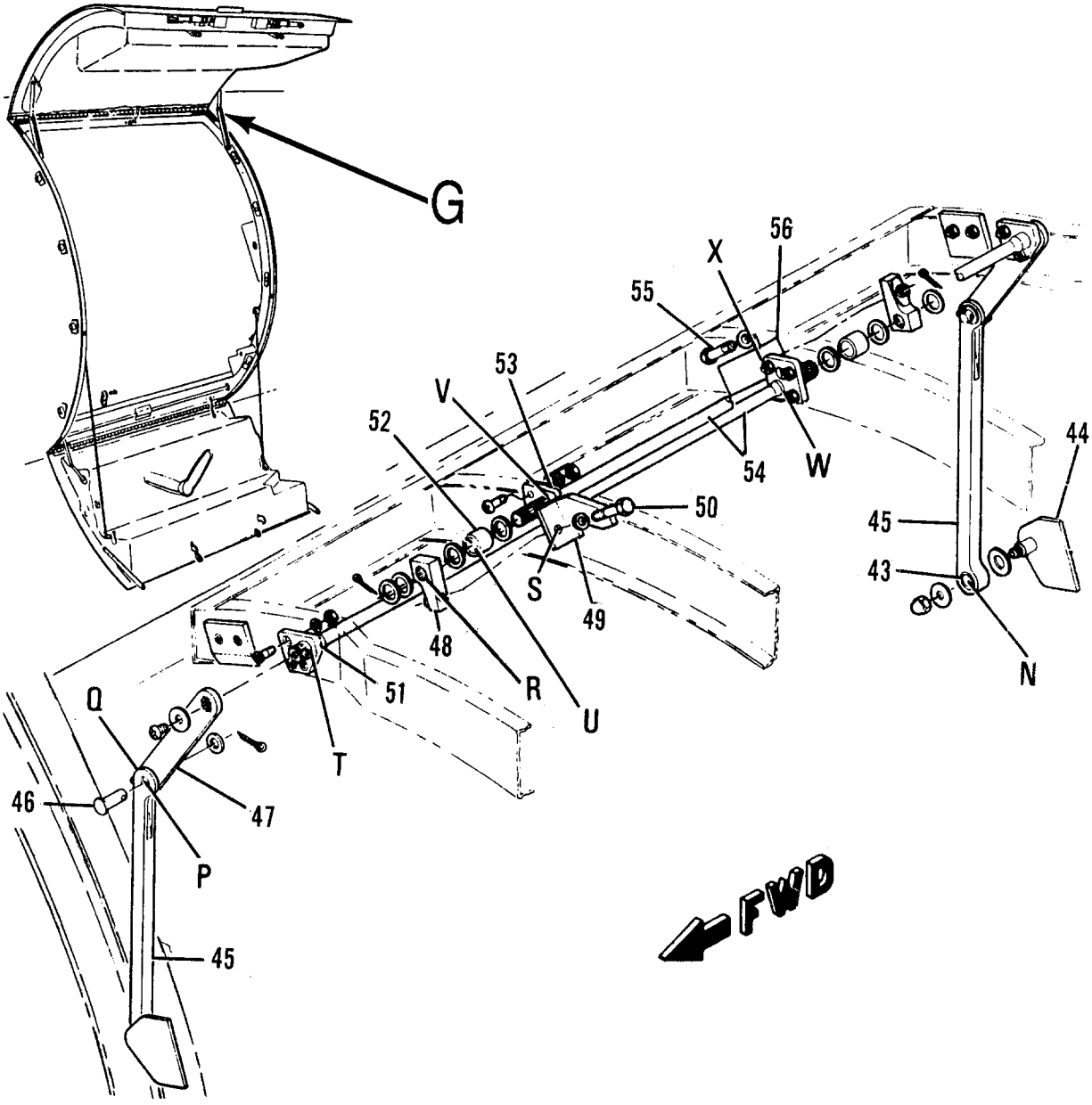


(23-060 thru 23-099 Equipped with 36 Inch Door, Except Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; 24-100 thru 24-180 Equipped with 36-Inch Door, Except Modified by SSK23-133, "Replacement of Upper Door Torsion Bar"; 25-001 thru 25-024 Equipped with 36-Inch Door, Except Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar")

Detail R

2-36C

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 24)

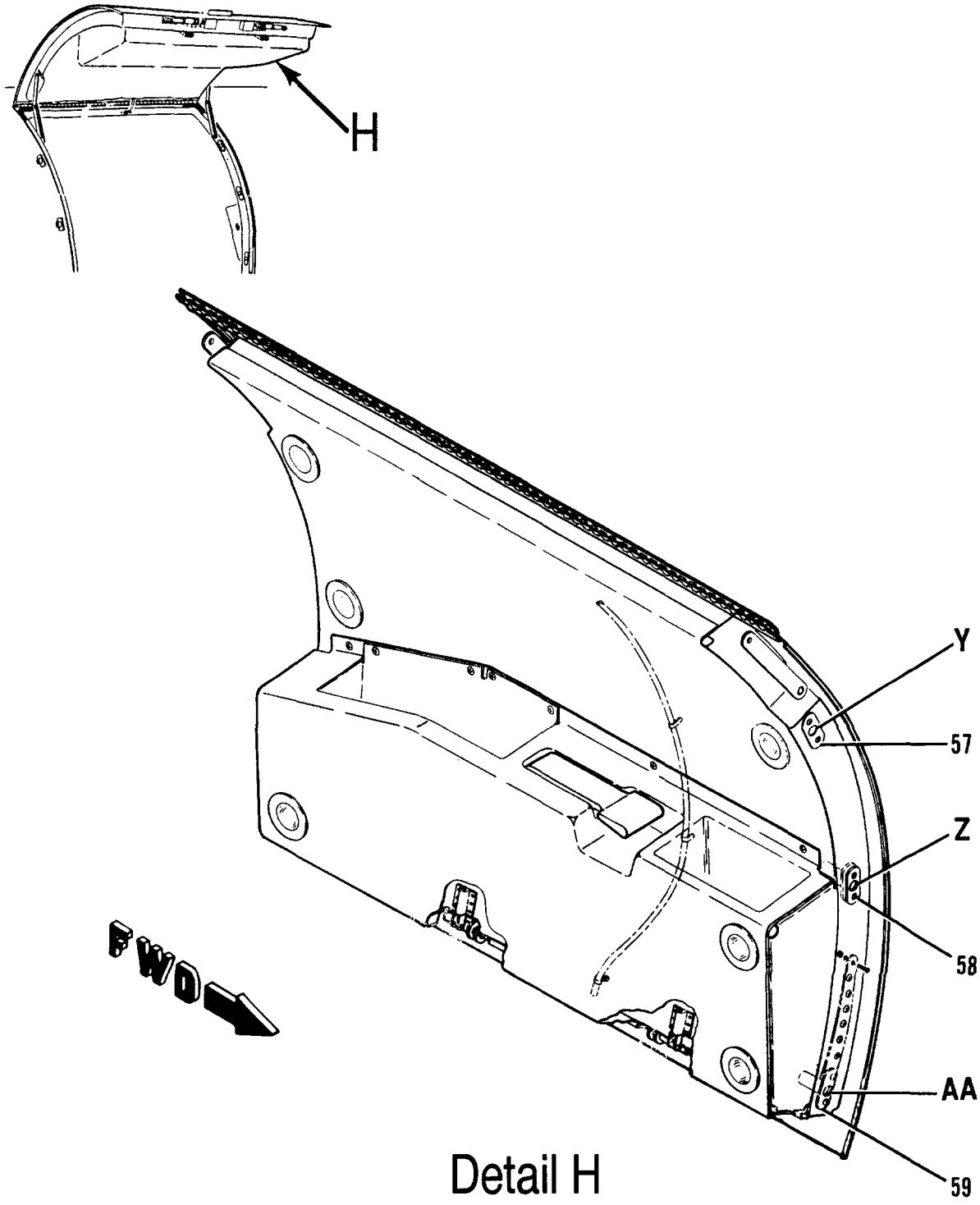


(23-060 thru 23-099 Equipped with 36-Inch Door and prior Aircraft Modified by SSK23-133, "Replacement of Upper Door Torsion Bar"; 24-181 and Subsequent Equipped with 36-Inch Door and prior Aircraft Modified by SK 23-133, "Replacement of Upper Door Torsion Bar"; 25-025 and Subsequent Equipped with 36-Inch Door and prior Aircraft Modified by SK 23-133, "Replacement of Upper Door Torsion Bar"; All 28, 29, 31, 35 and 36 Series Aircraft Equipped with 36-Inch Door)

Detail G

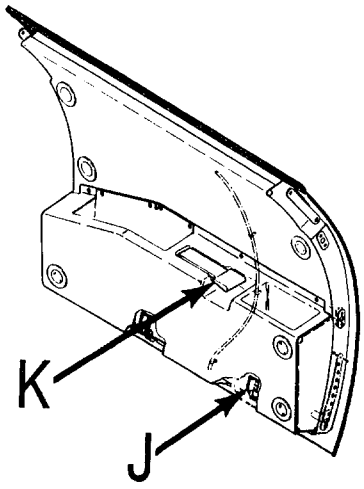
B8-10C
B4-6A
C4-5B-1

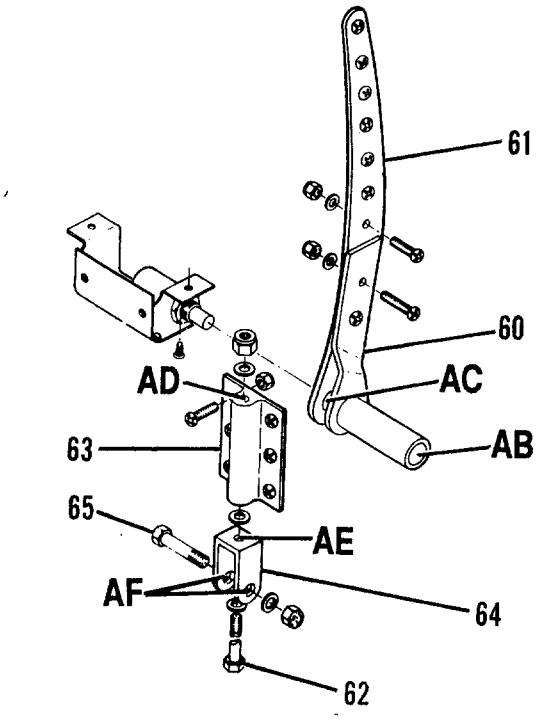
Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 24)



2-3C-1

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 24)

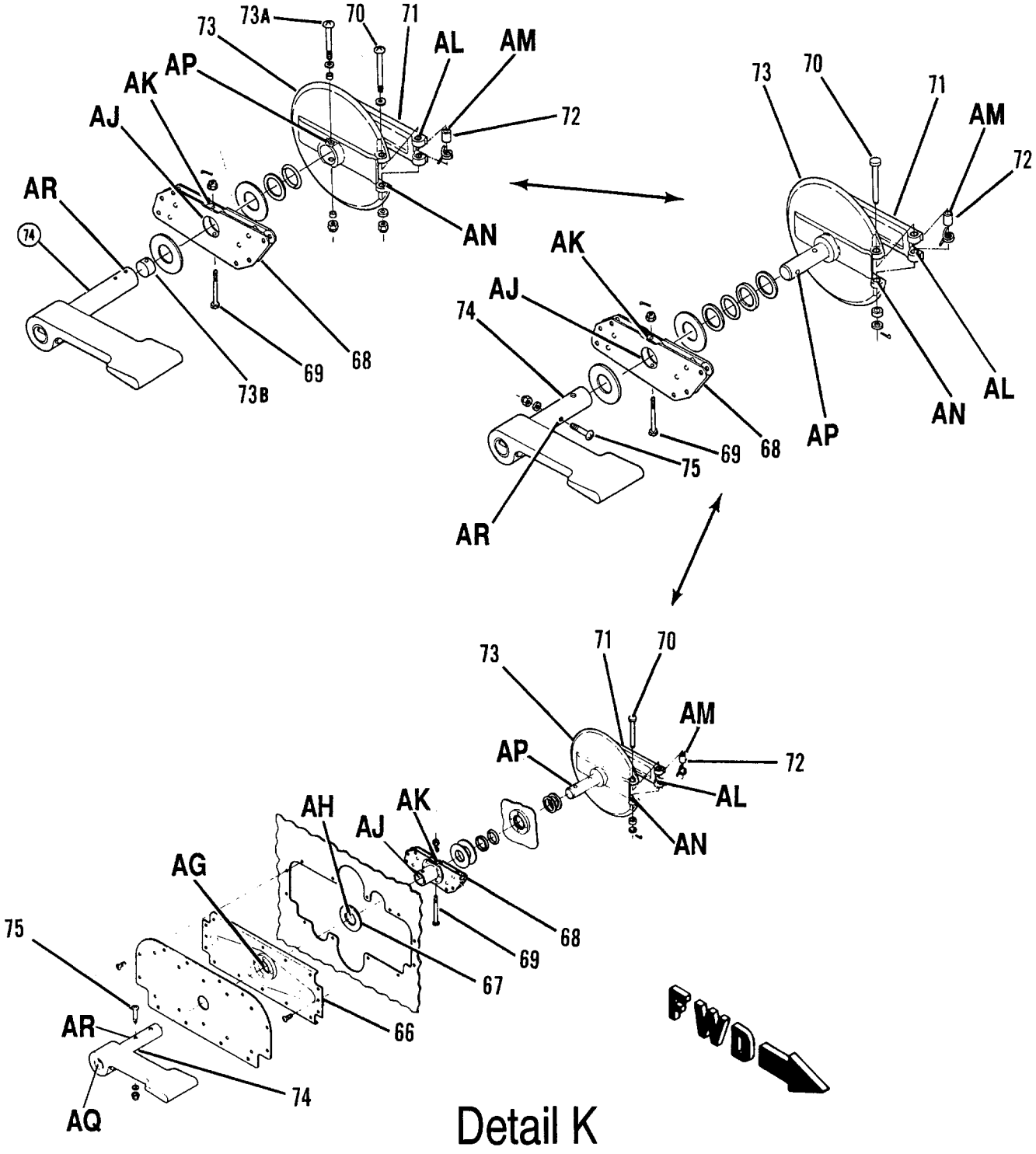




Detail J

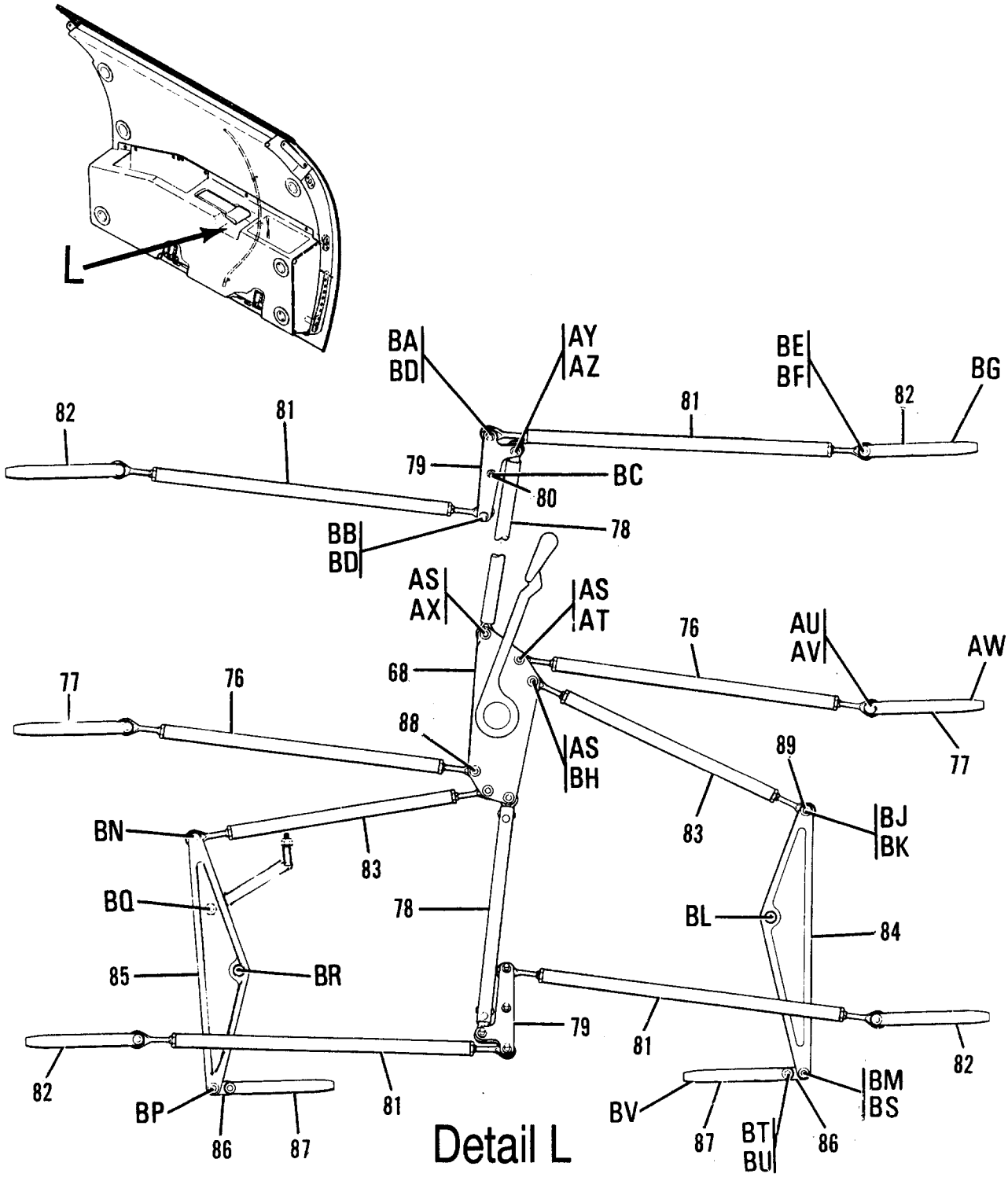
J2-5C
K2-1C-4

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 24)



J2-5C
K2-1C-4

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 24)



2-1R

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Plate - 2311280-75, -83	4	CA	0.6250	–	+0.0080/ -0.0010	–	–	–
2	Guide Assy. - 2311280-77, -103	4	CB	0.5100	0.6250	+0.0100/ -0.0000	+0.0080/ -0.0010	–	–
3	Plate - 2311280-67, -82	4	CC	0.6250	–	+0.0080/ -0.0010	–	–	–
	2311281-23		CC	0.6250	–	+0.0080/ -0.0010	–	–	–
	2311281-33		CC	0.6400	–	+0.0100/ -0.0100	–	–	–
4	Guide Assy. - 2311280-66	4	CB	0.5100	0.6250	+0.0100/ -0.0000	+0.0080/ -0.0010	–	–
5	Plate, Striker - 2311295-1, -2	2	CE	0.5310	–	+0.0060/ -0.0010	–	–	–
6	Plate - 2311280-83	5	CF	0.6250	–	+0.0080/ -0.0010	–	–	–
7	Guide Assy. - 2311280-77, -103	5	CG	0.5100	0.6250	+0.0100/ -0.0000	+0.0080/ -0.0010	–	–
8	Plate - 2311280-82	5	CH	0.6250	–	+0.0080/ -0.0010	–	–	–
	2311281-23		CH	0.6250	–	+0.0080/ -0.0010	–	–	–
	2311281-33		CH	0.6400	–	+0.0100/ -0.0100	–	–	–
9	Guide Assy. - 2311280-66, -88, -104	5	CJ	0.5100	0.6250	+0.0100/	+0.0080/ -0.0000	–	–
	2411281-10		CJ	0.5100	0.6400	+0.0100/ -0.0000	+0.0100/ -0.0100	–	–
10	Plate - 2311280-82, -111	5	CK	0.6250	–	+0.0080/ -0.0010	–	–	–
	2411281-23, -25		CK	0.6250	–	+0.0080/ -0.0010	–	–	–
	2411281-33, -35		CK	0.6400	–	+0.0100/ -0.010	–	–	–
11	Plate - 2411280-33	6	A	0.6400	–	+0.0100/ -0.0100	–	–	–
12	Guide, Plate Assy. - 2411281-10	6	B	0.6400	–	+0.0100/ -0.0100	–	–	–
13	Plate - 2411281-25	7	C	0.6250	–	+0.0080/ -0.0010	–	–	–
	2411281-35	8	C	0.6400	–	+0.0100/ -0.0100	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
14	Guide, Plate Assy. - 2411281-10	6	D	0.6400	–	+0.0100/ -0.0100	–	–	–
15	Plate - 2411281-34	10	E	0.6400	–	+0.0100/ -0.0100	–	–	–
16	Guide, Plate Assy. - 2411281-10	6	F	0.6400	–	+0.0100/ -0.0100	–	–	–
17	Plate - 2411281-23	7	G	0.6400	–	+0.0100/ -0.0100	–	–	–
	2411281-33	9	G	0.6400	–	+0.0100/ -0.0100	–	–	–
18	Guide, Plate Assy. - 2411281-10	11	H	0.6400	–	+0.0100/ -0.0100	–	–	–
19	Plate - 2411281-23	7	J	0.6400	–	+0.0100/ -0.0100	–	–	–
	2411281-33	8	J	0.6400	–	+0.0100/ -0.0100	–	–	–
20	Guide, Plate Assy. - 2411281-10	6	K	0.6400	–	+0.0100/ -0.0100	–	–	–
21	Plate - 2411281-24	7	L	0.6400	–	+0.0100/ -0.0100	–	–	–
	2411281-34	8	L	0.6400	–	+0.0100/ -0.0100	–	–	–
22	Guide, Plate Assy. - 2411281-10	6	M	0.6400	–	+0.0100/ -0.0100	–	–	–
23	Hinge, Half - Fuselage 2311280-19, -98, -108	2	CL	0.0700	–	+0.0000/ -0.0050	–	–	–
24	Hinge, Half - Fuselage 2411283-3, -8, -11, -014	3	CL	0.0700	–	+0.0000/ -0.0050	–	–	–
25	Hinge, Half - Door 2411280-20	2	CL	0.0700	–	+0.0000/ -0.0050	–	–	–
26	Hinge, Half - Door 2411283-2, -6, -10, -013	3	CL	0.0700	–	+0.0000/ -0.0050	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
26	Link - 2311492-15	12	CM	0.2500	–	+0.0050/ -0.0010	–	–	–
			CN	0.3160	–	+0.0010/ -0.0090	–	–	–
27	Pin, Clevis - MS20392-3C17	12	CM	–	0.2480	–	+0.0000/ -0.0020	–	–
28	Link - 2311492-21, -22	12	CM	0.2500	–	+0.0050/ -0.0010	–	–	–
29	Plate Guide - 2311492-10	12	CP	0.3750	–	+0.0060/ -0.0000	–	–	–
30	Plate Bearing - 2311492-17	12	CQ	0.3750	–	+0.0060/ -0.0000	–	–	–
31	Doubler - 2311492-19	12	CR	0.5000	–	+0.0060/ -0.0000	–	–	–
32	Fitting Assy. - 2311280-63, -64	12	CN	–	0.3140	–	+0.0000/ -0.0050	–	–
33	Link, Lwr, Torsion Bar Arm - 2311688-14	13	CS	0.2500	–	+0.0050/ -0.0010	–	–	–
			CZ	0.3160	–	+0.0010/ -0.0090	–	–	–
34	Pin, Clevis - MS20392-3C17	13	CS	–	0.2480	–	+0.0000/ -0.0020	–	–
35	Arm Assy. - 2311688-8	13	CT	0.4125	–	+0.0020/ -0.0000	–	–	–
36	Spacer - NAS43HT7-18	13	CU	0.4600	–	+0.0300/ -0.0200	–	–	–
37	Plate Bearing - 2311688-13	13	CV	0.4690	–	+0.0060/ -0.0010	–	–	–
38	Torsion Bar - 2311688-1	13	CU	–	0.3750	–	+0.0060/ -0.0000	–	–
39	Angle, Torque Adj. Support - 2311688-6, -7	13	CW	0.1890	–	+0.0050/ -0.0000	–	–	–
40	Bolt - MS20073-03-12	13	CW	–	0.1890	–	+0.0000/ -0.0030	–	–
41	Plate Bearing - 2311688-9	13	CX	0.5020	–	+0.0050/ -0.0000	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
42	Link, Upper - 2311688-3, -18	13	CY	0.4125	–	+0.0020/ -0.0000	–	–	–
			CS	0.2500	–	+0.0050/ -0.0010	–	–	–
43	Bushing - DBS-7-030 (Alt - AJ07C-125)	11	N	–	–	–	–	–	–
44	Support, Torsion Bar - Link - 2411682-1, -5, -6, -17, -18, -27, -28, -31, -32	14	N	–	0.4300	–	+0.0090/ -0.0000	–	–
45	Link Assy., Lower Arm - 2411681-1	24	N	0.4690	–	+0.0060/ -0.0010	–	–	–
	2411681-15, -21	25	N	0.6259	–	+0.0000/ -0.0005	–	–	–
45A	Bushing - DBS-7-30 (Alt. AJ07C-030)	24	N	–	–	–	–	–	–
46	Pin, Clevis - MS20392-3C17	14	P, Q	–	0.2480	–	+0.0000/ -0.0020	–	–
47	Link, Upper Torsion Bar Arm - 2311688-3, -16, -17, -18	14	Q	0.2500	–	+0.0050/ -0.0010	–	–	–
48	Arm Assy. - 2311688-8	14	R	0.4125	–	+0.0020/ -0.0000	–	–	–
49	Angle, Torsion Bar - 2311688-7	14	S	0.1890	–	+0.0050/ -0.0000	–	–	–
50	Bolt - NAS1003-12H	14	S	–	0.1880	–	+0.0015/ -0.0010	-	–
51	Plate, Bearing - 2311688-9	14	T	0.5020	–	+0.0050/ -0.0000	–	–	–
52	Spacer - NAS43HT7-18	14	U	0.4650	0.5600	+0.0250/ -0.0250	+0.0180/ -0.0120		
53	Plate, Bearing - 2311688-13	14	V	0.4390	–	+0.0050/ -0.0000	–	–	–
54	Bar, Torsion - 2311688-1	14	T, U, V, W	–	0.4375	–	+0.0000/ -0.0020	–	–
55	Bolt - NAS1003-12H	14	X	–	0.1880	–	+0.0015/ -0.0010	–	–
56	Angle, Torsion Bar - 2311688-6, -7	14	X	0.1890	–	+0.0050/ -0.0010	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 14 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
57	Plate - 2311271-17	1	Y	0.4950	–	+0.0050/ -0.0000	–	–	–
58	Guide Assy., Pin - 2311271-12	1	Z	0.4950	–	+0.0050/ -0.0000	–	–	–
59	Guide Assy. - 2311279-1, -2	1	AA	0.4950	–	+0.0050/ -0.0000	–	–	–
60	Guide Assy. - 2311276-1, -2, -5, -6, -9, -10	1	AB	0.4950	–	+0.0050/ -0.0000	–	–	–
61	Hinge Arm - 2311278-3	1	AC	0.4950	–	+0.0050/ -0.0000	–	–	–
62	Bolt - AN4-27A	1	AD, AE	–	0.2480	–	+0.0010/ -0.0020	–	–
63	Guide - 2311502-4, -12	1	AD	0.2500	–	+0.0050/ -0.0010	–	–	–
64	Clevis - 2311502-5, -11, -17	1	AE	0.2500	–	+0.0050/ -0.0010	–	–	–
			AF	0.3117	–	+0.0010/ +0.0000	–	–	–
65	Bolt - NAS464P5A12	1	AF	–	0.3117	–	+0.0000/ -0.0009	–	–
66	Support Assy. - 2311495-28, -69, -134	1	AG	1.0100	–	+0.0100/ -0.0100	–	–	–
67	Bearing, Thrust - 2411515-1	1	AH	1.2000	2.1800	+0.0300/ -0.0300	+0.0300/ -0.0300	–	–
68	Control Rod Assy. - 2311288-1	15	AJ	1.0100	–	+0.0050/ -0.0050	+0.0300/ -0.0300	–	–
			AK	0.1890	–	+0.0100/ -0.0100	–	–	–
			AS	0.1880	–	+0.0050/ -0.0010	–	–	–
	Quadrant Assy. - 2411513-1	16	AJ	1.0100	–	+0.0050/ -0.0050	+0.0300/ -0.0300	–	–
			AK	0.1890	–	+0.0100/ -0.0100	–	–	–
			AS	0.1880	–	+0.0050/ -0.0010	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 15 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
69	Bolt - 2311490-8	17	AK	–	0.1894	–	+0.0000/ -0.0009	–	–
	2311490-12, -13	16	AK	–	0.1894	–	+0.0000/ -0.0009	–	–
70	Pin, Clevis - AN23-34A	18	AL, AM, AN	–	0.1860	–	+0.0000/ -0.0020	–	–
	MS20392-2C63	19	AL, AM, AN	–	0.1860	–	+0.0000/ -0.0020	–	–
71	Handle Assy., Outer - 2311286-3, -6, -9	20	AL	0.2504	–	+0.0005/ -0.0000	–	–	–
	2411286-1, -3	21	AL	0.2504	–	+0.0005/ -0.0000	–	–	–
72	Spacer, NAS43DD3-26, -22	1	AM	0.2140	0.3120	+0.0200/ -0.0200	+0.0100/ -0.0100	–	–
73	Cover Assy., Outer Handle - 2311287-3	18	AN	0.1880	–	+0.0100/ -0.0100	–	–	–
			AP	–	0.8600	–	+0.0000/ -0.0050	–	–
	2311287-4, -7 2411287-2, -3, -4	19	AN	0.1880	–	+0.0100/ -0.0100	–	–	–
			AP	–	0.8600	–	+0.0000/ -0.0050	–	–
73A	Bolt - NAS221-28	18	AP	–	0.1890	–	+0.0000/ -0.0009	–	–
73B	Plug, Handle - 2311491-5	18	CZ	–	0.8450	–	+0.0050/ -0.0050	–	–
74	Tube Handle - 2311491-19	17	AR	0.1890	–	+0.0000/ -0.0010	–	–	–
			AQ	–	1.0000	–	+0.0300/ -0.0300	–	–
	2411491-14	18	AR	0.1890	–	+0.0000/ -0.0010	–	–	–
			AQ	–	1.0000	–	+0.0300/ -0.0300	–	–
	2411516-1, -2, -3	16	AR	0.1890	–	+0.0000/ -0.0010	–	–	–
			AQ	–	1.0000	–	+0.0300/ -0.0300	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 16 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
75	Bolt - NAS221-23	17	AR	–	0.1890	–	+0.0000/ -0.0009	–	–
	NAS464P3A19	16	AR	–	0.1894	–	+0.0000/ -0.0009	–	–
76	Pushrod Assy., Pin - 2311498-1, -3	1	AT	0.1900	–	+0.0020/ -0.0000	–	–	–
			AU	0.1900	–	+0.0020/ -0.0000	–	–	–
77	Pin - 2311491-18	1	AV	0.1880	–	+0.0050/ -0.0010	–	–	–
			AW	–	0.4850	–	+0.0000/ -0.0050	–	–
78	Rod Assy. - 2311494-1	22	AX	–	–	–	–	–	–
			AY	–	–	–	–	–	–
	2311490V1-004	23	AX	–	–	–	–	–	–
			AY	–	–	–	–	–	–
79	Arm Assy., Rocker - 2311277-1	1	AZ	0.1880	–	+0.0100/ -0.0100	–	–	–
			BA	0.1880	–	+0.0100/ -0.0100	–	–	–
			BB	0.1880	–	+0.0100/ -0.0100	–	–	–
			BC	0.2504	–	+0.0005/ -0.0000	–	–	–
80	Pin, Clevis - MS20392-2C25	1	BC	–	0.2480	–	+0.0000/ -0.0002	–	–
81	Pushrod Assy., Pin - 2311496-5, -7, -9	22	BD	0.1900	–	+0.0020/ -0.0000	–	–	–
			BE	0.1900	–	+0.0020/ -0.0000	–	–	–
	2311490V1-002	23	BD	0.1900	–	+0.0020/ -0.0000	–	–	–
			BE	0.1900	–	+0.0020/ -0.0000	–	–	–
82	Pin - 2311491-17	1	BF	0.1880	–	+0.0050/ -0.0010	–	–	–
			BG	–	0.4850	–	+0.0000/ -0.0050	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 17 of 24)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
83	Pushrod Assy., Pin - 2311497-1, -3	1	BH	0.1900	–	+0.0020/ -0.0000	–	–	–
			BJ	0.1900	–	+0.0020/ -0.0000	–	–	–
84	Bellcrank Assy., Fwd - 2311284-1	1	BK	0.1880	–	+0.0100 -0.0100	–	–	–
			BL	0.3754	–	+0.0005/ -0.0000	–	–	–
			BM	0.1880	–	+0.0100/ -0.0100	–	–	–
85	Bellcrank Assy., Aft - 2311283-1, -3, -5	1	BN	0.1880	–	+0.0100/ -0.0100	–	–	–
			BP	0.1880	–	+0.0100/ -0.0100	–	–	–
			BQ	0.1890	–	+0.0050/ -0.0010	–	–	–
			BR	0.3754	–	+0.0005/ -0.0000	–	–	–
86	Link Assy., Lwr Pins - 2311491-1	1	BS	0.2504	–	+0.0005/ -0.0000	–	–	–
			BT	0.2504	–	+0.0005/ -0.0000	–	–	–
87	Pin - 2311491-16	1	BU	0.1880	–	+0.0050/ -0.0010	–	–	–
			BV	–	0.4850	–	+0.0000/ -0.0050	–	–
88	Pin, Clevis - MS20392-2C17	1	AS, AT, AU, AV, AX, AY, AZ, BA, BB, BD, BE, BF, BH	–	0.1860	–	+0.0000/ -0.0020	–	–
89	Pin, Clevis - MS20392-2C21	1	BJ, BK, BM, BN, BP, BS, BT, BU	–	0.1860	–	+0.0020/ -0.0020	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 18 of 24)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Plate - 2311280-75, -83	4	CA	Replace worn part.
2	Guide Assy. - 2311280-77, -103	4	CA	Replace worn part.
3	Plate - 2311280-67, -82	4	CC	Replace worn part.
	2311281-23		CC	Replace worn part.
	2311281-33		CC	Replace worn part.
4	Guide Assy. - 2311280-66	4	CB	Replace worn part.
5	Plate, Striker - 2311295-1, -2	2	CE	Replace worn part.
6	Plate - 2311280-83	5	CF	Replace worn part.
7	Guide Assy. - 2311280-77, -103	5	CG	Replace worn part.
8	Plate - 2311280-82	5	CH	Replace worn part.
	2311281-23		CH	Replace worn part.
	2311281-33		CH	Replace worn part.
9	Guide Assy. - 2311280-66, -88, -104	5	CJ	Replace worn part.
	2411281-10		CJ	Replace worn part.
10	Plate - 2311280-82, -111	5	CH	Replace worn part.
	2311281-23, -25		CH	Replace worn part.
	2311281-33, -35		CH	Replace worn part.
11	Plate - 2411281-33	6	A	Replace worn part.
12	Guide, Plate Assy. - 2411281-10	6	B	Replace worn part.
13	Plate - 2411821-25	7	C	Replace worn part.
	2411821-35	8	C	Replace worn part.
14	Guide, Plate Assy. - 2411281-10	6	D	Replace worn part.
15	Plate - 2411281-34	10	E	Replace worn part.
16	Guide, Plate Assy. - 2411281-10	6	F	Replace worn part.
17	Plate - 2411281-23	7	G	Replace worn part.
	2411281-33	9	G	Replace worn part.
18	Guide, Plate Assy. - 2411281-10	11	H	Replace worn part.
19	Plate - 2411281-23	7	J	Replace worn part.
	2411281-33	8	J	Replace worn part.
20	Guide, Plate Assy. - 2411281-10	6	K	Replace worn part.
21	Plate - 2411281-24	7	L	Replace worn part.
	2411281-34	8	L	Replace worn part.
22	Guide, Plate Assy. - 2411281-10	6	M	Replace worn part.
23	Hinge Half, Fuselage - 2311280-19, -98, -108	2	CL	Replace worn part.
24	Hinge Half, Fuselage - 2411280-3, -8, -11, -104	3	CL	Replace worn part.
25	Hinge Half, Door - 2411280-20	2	CL	Replace worn part.
	2411283-2, -6, -10, -013	3	CL	Replace worn part.
26	Link - 2311492-15	12	CM, CN	Replace worn part.
27	Pin, Clevis - MS20392-3C17	12	CM	Replace worn part.
28	Link - 2311492-21, -22	12	CM	Replace worn part.
29	Plate Guide - 2311492-10	12	CP	Replace worn part.
30	Plate Bearing - 2311492-17	12	CQ	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 19 of 24)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
31	Doubler - 2311492-19	12	CR	Replace worn part.
32	Fitting Assy. - 2311280-63, -64	12	CN	Replace worn part.
33	Link, Lower Torsion Bar Arm - 2311688-14	13	CS, CZ	Replace worn part.
34	Pin, Clevis - MS20392-3C17	13	CS	Replace worn part.
35	Arm Assy. - 2311688-8	13	CT	Replace worn part.
36	Spacer - NAS43H57-18	13	CU	Replace worn part.
37	Plate Bearing - 2311688-13	13	CV	Replace worn part.
38	Torsion Bar - 2311688-1	13	CU	Replace worn part.
39	Angle, Torque Adj. Support - 2311688-6, -7	13	CW	Replace worn part.
40	Bolt - MS20073-03-12	13	CW	Replace worn part.
41	Plate Bearing - 2311688-9	13	CX	Replace worn part.
42	Link, Upper - 2311688-1, -18	13	CY, CS	Replace worn part.
43	Bushing - DBS-7-030 (Alt. AJ07C-125)	1	N	Replace worn part. Install new bushing with Loctite.
44	Support, Torsion Bar Link - 2411682-1, -5, -6, -17, -18, -27, -28, -31, -32	14	N	Replace worn part.
45	Link Assy., Lower Arm, 2411681-21	24	N	Replace worn part.
	2411681-15, -21	25	N	Replace worn part.
45A	Bushing - DBS-7-30 (Alt. AJ07C-030)	24	N	Replace worn part.
46	Pin, Clevis - MS20392-3C17	14	P, Q	Replace worn part.
47	Link, Upper Torsion Bar Arm - 2311688-3, -16, -17, -18	14	Q	Replace worn part.
48	Arm Assy. - 2311688-8	14	R	Replace worn part.
49	Angle, Torsion Bar - 2311688-7	14	S	Replace worn part.
50	Bolt - NAS1003-12H	14	S	Replace worn part.
51	Plate, Bearing - 2311688-9	14	T	Replace worn part.
52	Spacer - NAS43H17-18	14	U	Replace worn part.
53	Plate, Bearing - 2311688-13	14	V	Replace worn part.
54	Bar, Torsion - 2311688-1	14	T, U, V, W	Replace worn part.
55	Bolt - NAS1003-12H	14	X	Replace worn part.
56	Angle, Torsion Bar - 2311688-6, -7	14	X	Replace worn part.
57	Plate - 2311271-17	1	Y	Replace worn part.
58	Guide Assy., Pin - 2311271-12	1	Z	Replace worn part.
59	Guide Assy. - 2311279-1, -2	1	AA	Replace worn part.
60	Guide Assy. - 2311276-1, -2, -5, -6, -9, -10	1	AB	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 20 of 24)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
61	Hinge, Arm - 2311278-3	1	AC	Replace worn part.
62	Bolt - AN4-27A	1	AD, AE	Replace worn part.
63	Guide - 2311502-4, -12	1	AD	Replace worn part.
64	Clevis - 2311502-5, -11, -17	1	AE, AF	Replace worn part.
65	Bolt - NAS464P5A12	1	AF	Replace worn part.
66	Support Assy. - 2311495-28, -69, -134	1	AG	Replace worn part.
67	Bearing, Thrust - 2411515-1	1	AH	Replace worn part.
68	Control Rod Assy. - 2311288-1	15	AJ, AK, AS	Replace worn part.
	Quadrant Assy. - 2411513-1	16	AJ, AK, AS	Replace worn part.
69	Bolt - 2311490-8	17	AK	Replace worn part.
	Bolt - 2311490-12, -13	16	AK	Replace worn part.
70	Pin, Clevis - AN23-34A	18	AL, AM, AN	Replace worn part.
	MS20392-2C63	19	AL, AM, AN	Replace worn part.
71	Handle Assy., Outer -			
	2311286-1, -3, -9	20	AL	Replace worn part.
	2411286-1, -3	21	AL	Replace worn part.
72	Spacer - NAS43DD3-22, -26	1	AM	Replace worn part.
73	Cover Assy., Outer Handle -			
	2311287-3	18	AN,AP	Replace worn part.
	2311287-4, -7	19	AN,AP	Replace worn part.
	2411287-2, -3, -4			
73A	Bolt - NAS221-28	18	AP	Replace worn part.
73B	Plug, Handle - 2311491-5	18	CZ	Replace worn part.
74	Tube, Handle - 2311491-19	17	AQ, AR	Replace worn part.
	2411491-14	18	AQ, AR	Replace worn part.
	2411516-1, -2, -3	16	AQ, AR	Replace worn part.
75	Bolt - NAS221-23	17	AR	Replace worn part.
	NAS464P3A219	16	AR	Replace worn part.
76	Pushrod Assy., Pin - 2311498-1, -3	1	AT, AU	Replace worn part.
77	Pin - 2311491-18	1	AV, AW	Replace worn part.
78	Rod Assy. - 2311494-1	22	AX, AY	Replace worn part.
	2311490V1-004	23	AX, AY	Replace worn part.
79	Arm Assy., Rocker - 2311277-1	1	AZ, BA, BB, BC	Replace worn part.
80	Pin, Clevis - MS20392-2C25	1	BC	Replace worn part.
81	Pushrod Assy., Pin -			
	2311496-5, -7, -9	22	BD, BE	Replace worn part.
	2311490V1-002	23	BD, BE	Replace worn part.
82	Pin - 2311491-17	1	BF, BG	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 21 of 24)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
83	Pushrod Assy., Pin - 2311497-1, -3	1	BH, BJ	Replace worn part.
84	Bellcrank Assy., Fwd - 2311284-1	1	BK, BL, BM	Replace worn part.
85	Bellcrank Assy., Aft - 2311283-1, -3, -5	1	BN, BP, BQ, BR	Replace worn part.
86	Link Assy., Lwr Pins - 2311491-1	1	BS, BT	Replace worn part.
87	Pin - 2311491-16	1	BU, BV	Replace worn part.
88	Pin, Clevis - MS20392-2C17	1	AS, AT, AU, AV, AX, AY, AZ, BA, BB, BD, BE, BF, BH	Replace worn part.
89	Pin, Clevis - MS20392-2C21	1	BJ, BK, BM, BN, BP, BS, BT, BU	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 22 of 24)

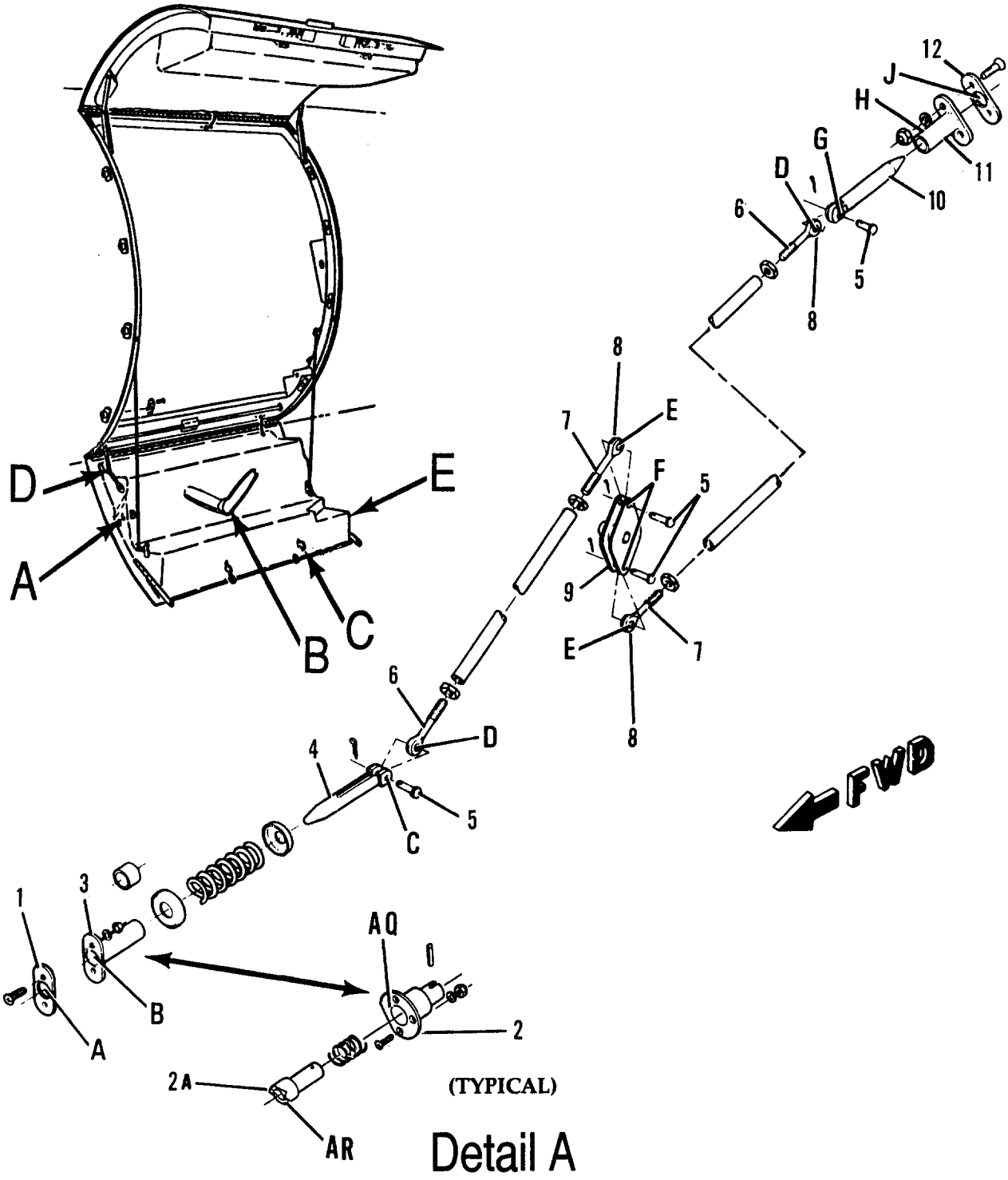
CODES	EFFECTIVITIES
	NOTE: The following effectivities are applicable provided *Aircraft is Equipped with 36-Inch Passenger/Crew Door*.
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 thru 24-229; 25-001 thru 25-066, Except 25-061
3	24-230 and Subsequent; 25-061, 25-067 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
4	23-001 thru 23-099
5	24-100 thru 24-229; 25-001 thru 25-066, Except 25-061
6	31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
7	35-001 thru 35-051; 36-001 thru 36-016
8	31-001 and Subsequent; 35-052 and Subsequent; 36-017 and Subsequent
9	35-052 thru 35-510; 36-017 thru 36-053
10	31-001 and Subsequent; 35-511 and Subsequent; 36-054 and Subsequent
11	35-001 thru 35-510; 36-001 thru 36-053
12	23-001 thru 23-059, Except Aircraft Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"
13	23-060 thru 23-099, Except Aircraft Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; 24-100 thru 24-180, Except Aircraft Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; 25-001 thru 25-024, Except Aircraft Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"
14	23-060 thru 23-099 When Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; 24-180 and Subsequent and Prior Aircraft Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; 25-025 and Subsequent and Prior Aircraft Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
15	23-001 thru 23-099 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 24-100 thru 24-356 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 25-001 thru 25-238 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 35-001 thru 35-167 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 36-001 thru 36-038 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"
16	23-001 thru 23-099 When Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 24-357 and Subsequent and Prior Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 25-239 and Subsequent and Prior Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-168 and Subsequent and Prior Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 36-039 and Subsequent and Prior Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"
17	23-050 and Subsequent and Prior Aircraft Modified by SSK 23-114, "Upper Door Handle Replacement" Except When Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 24-100 thru 24-356 Except When Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 25-001 thru 25-238 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 35-001 thru 35-167 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 36-001 thru 36-038 Except Aircraft Modified by AMK 78-02, "Replacement of Door Handle Mechanism"
18	23-001 thru 23-049 Except Aircraft Modified by SSK 23-114, "Upper Door Handle Replacement" and Except When Modified by AMK 78-02, "Replacement of Door Handle Mechanism"

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 23 of 24)

CODES	EFFECTIVITIES
19	23-050 and Subsequent and Prior Aircraft Modified by SSK 23-114, "Upper Door Handle Replacement" and/or Modified by AMK 78-02, "Replacement of Door Handle Mechanism"; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
20	23-001 thru 23-099; 24-100 thru 24-241
21	24-242 and Subsequent and Prior Aircraft Equipped With 2411287 Handle; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
22	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-118; 35-001 and Subsequent; 36-001 and Subsequent
23	31-119 and Subsequent
24	23-001 thru 23-099 When Modified by SSK 23/24/25-321, "Upper Door Torsion Bar Linkage Replacement" Except When Modified by AMK 71-06A, "Upper Door Torsion Bar Linkage Replacement", or AMK 71-05, "Installation of Anti-Friction Bushing in Upper Cabin Door Torsion Bar Links"; 24-181 thru 24-241 Except Aircraft Modified by AMK 71-05, "Installation of Anti-Friction Bushing in Upper Cabin Door Torsion Bar Links", and Prior Aircraft Modified by SSK 23/24/25-321, "Upper Door Torsion Bar Linkage Replacement", Except Aircraft Modified by AMK 71-05, "Installation of Anti-Friction Bushing in Upper Cabin Door Torsion Bar Links"; 25-025 thru 25-077 Except When Modified by AMK 71-05, "Installation of Anti-Friction Bushing in Upper Cabin Door Torsion Bar Links", and Prior Aircraft Modified by SSK 23/24/25-321, "Upper Door Torsion Bar Linkage Replacement" Except When Modified by AMK 71-06A, "Upper Door Torsion Bar Linkage Replacement"
25	23-001 thru 23-099 When Modified by SSK 23-133, "Replacement of Upper Door Torsion Bar"; AMK 71-06A, "Upper Door Torsion Bar Linkage Replacement", or AMK 71-05, "Installation of Anti-Friction Bushing in Upper Cabin Door Torsion Bar Links"; 24-242 and Subsequent and Prior Aircraft Modified by AMK 71-06A, "Upper Door Torsion Bar Linkage Replacement"; 25-078 and Subsequent and Prior Aircraft Modified by AMK 71-06A, Upper Door Torsion Bar Linkage Replacement, or AMK 71-05, "Installation of Anti-Friction Bushing in Upper Cabin Door Torsion Bar Links"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

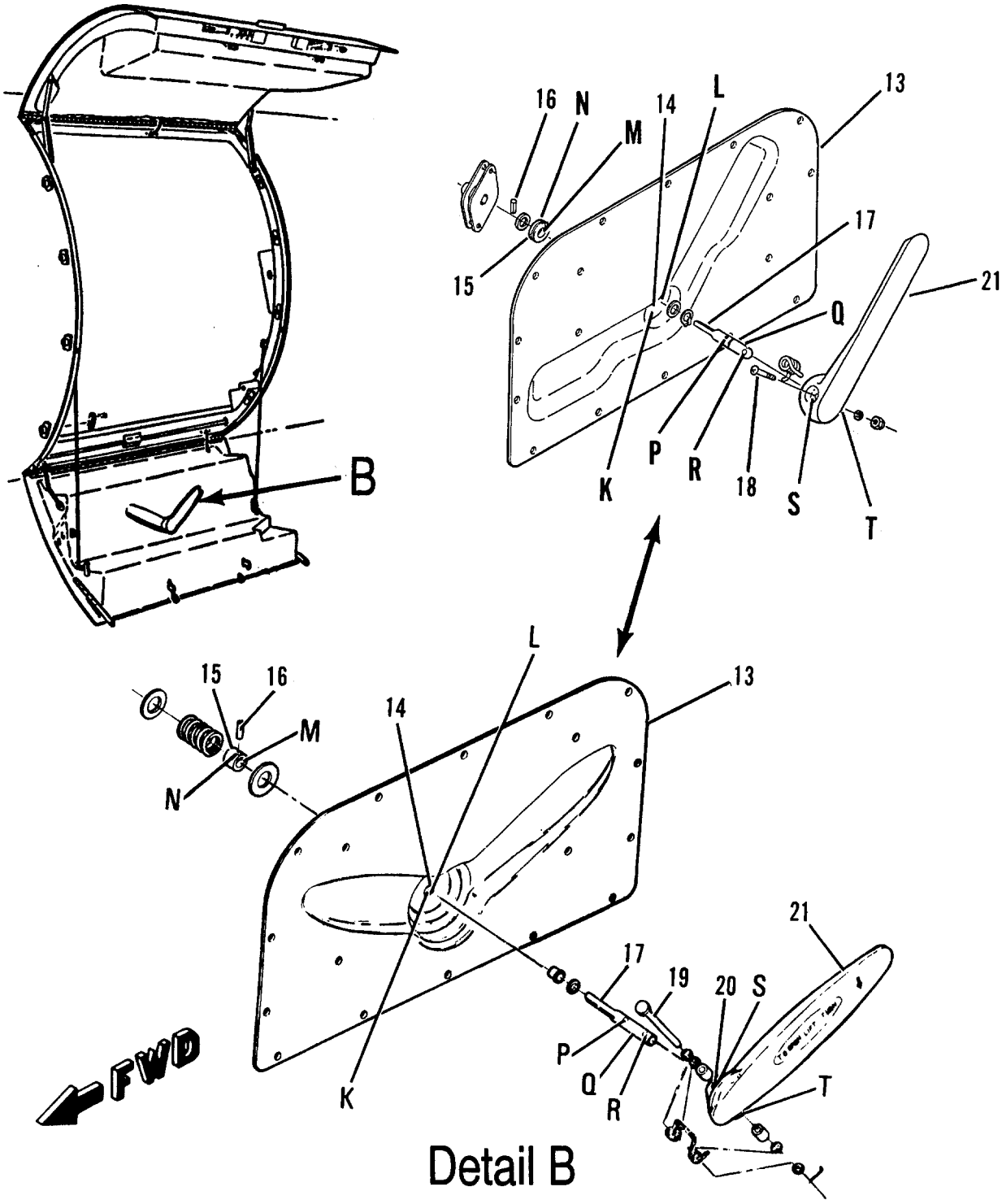
Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 24 of 24)

PASSENGER/CREW LOWER DOOR - ALLOWABLE WEAR AND REPAIR DATA



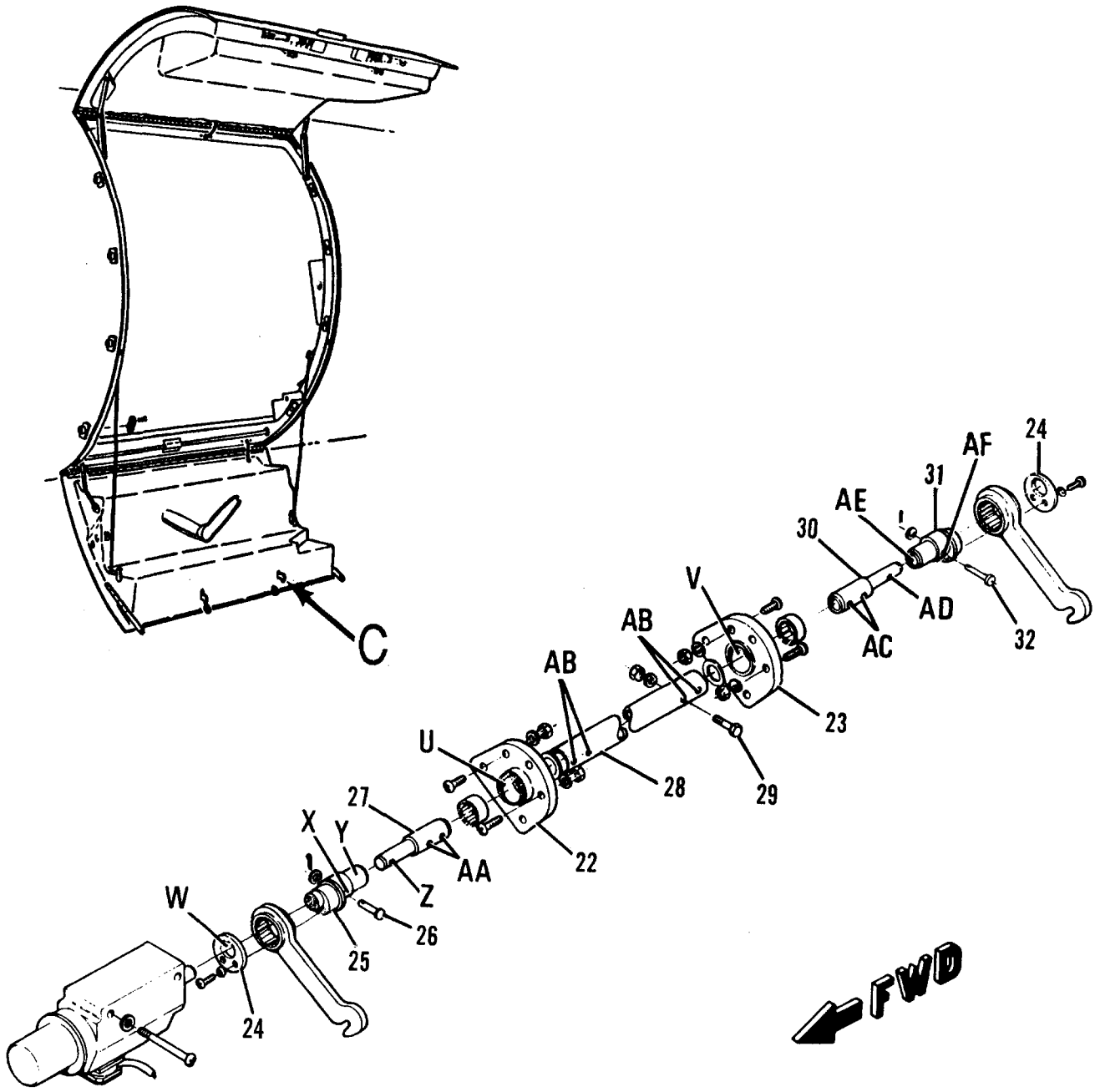
2-14C

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 13)

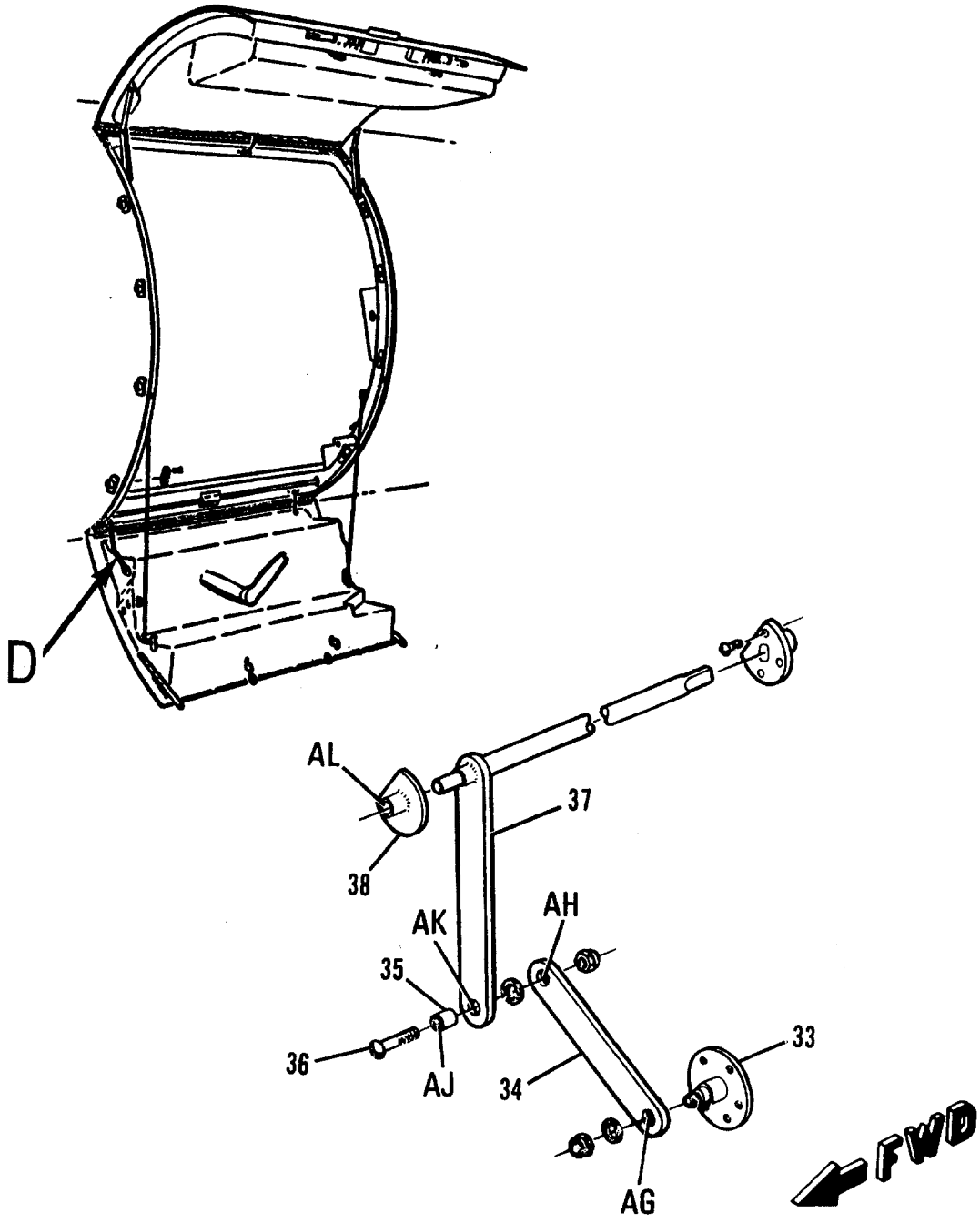


2-14C
2-55C

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 13)



Detail C

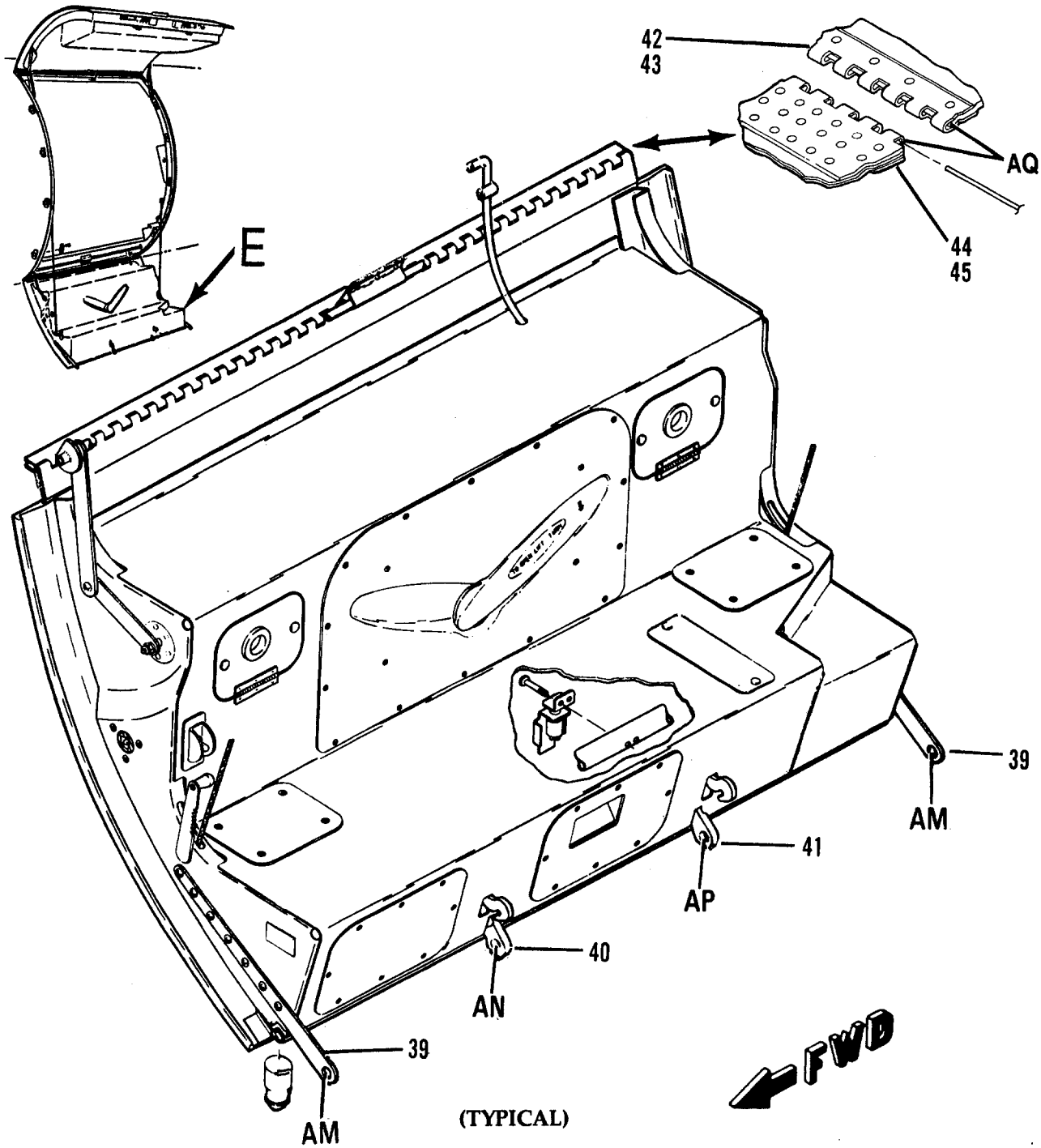


Detail D

2-8C

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 13)

PASSENGER/CREW LOWER DOOR - ALLOWABLE WEAR AND REPAIR DATA



Detail E

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Plate - 2311271-17	1	A	0.4950	–	+0.0050/ -0.0000	–	–	–
2	Housing - 2311291-2	2	AQ	0.6250	–	–	–	–	–
2A	Bolt - 2311291-3	2	AR	0.5000	–	+0.0006/ -0.0000	–	–	–
3	Guide Assy., Pin - 2511278-1	3	B	0.5050	–	+0.0050/ -0.0000	–	–	–
4	Pin, Door - 2311291-6	1	A, B	–	0.4850	–	+0.0100/ -0.0000	–	–
			C	0.1880	–	+0.0050/ -0.0010	–	–	–
5	Pin, Clevis - MS20392-2C17	1	C, D, E, F, G	–	0.1860	–	+0.0000/ -0.0020	–	–
6	Turnbuckle - AN165H32LS	22	D	0.1900	–	+0.0020/ -0.0000	–	–	–
	2411242-1	23	D	0.1900	–	+0.0020/ -0.0000	–	–	–
7	Turnbuckle - AN165H32RS	22	E	0.1900	–	+0.0020/ -0.0000	–	–	–
	2411242-2	23	E	0.1900	–	+0.0020/ -0.0000	–	–	–
8	Bushing - AA226-1	1	D, E	–	–	–	–	–	–
9	Crank, Lower Door - 2311293-1	4	F	0.1880	–	+0.0050/ -0.0010	–	–	–
	2411224-1	5	F	0.1880	–	+0.0050/ -0.0010	–	–	–
10	Pin, Door, Aft - 2311491-16	1	G	0.1880	–	+0.0050/ -0.0010	–	–	–
			H, J	–	0.4850	–	+0.0000/ -0.0050	–	–
11	Guide Assy., Pin - 2311271-12	1	H	0.6310	–	+0.0000/ -0.0050	–	–	–
12	Plate - 2311271-17	1	J	0.4950	–	+0.0050/ -0.0000	–	–	–
13	Pan Assy. - 2311229-2	6	K	0.4380	–	+0.0060/ -0.0010	–	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 13)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
	2311300-1	7	K	0.4380	–	+0.0060/ -0.0010	–	–	–
	2381403-2	8	K	0.6600	–	+0.0300/ -0.0300	–	–	–
	2411221-1	9	K	0.6600	–	+0.0300/ -0.0300	–	–	–
	2411221-3, -6	10	K	0.6600	–	+0.0300/ -0.0300	–	–	–
14	Bushing - 2411223-2	1	K	–	0.6200	–	+0.0300/ -0.0300	–	–
			L	0.5030	–	+0.0010/ -0.0000	–	–	–
15	Bushing - 2311340-5	11	M	0.3800	–	+0.0300/ -0.0000	–	–	–
			N	0.1400	–	+0.0100/ -0.0100	–	–	–
16	Pin, Spring - NAS561P4-8 (Alt. NAS561P4-10)	11	N, P	–	0.1310	–	+0.0040/ -0.0000	–	–
17	Shaft, Handle - 2311302-1	12	P	0.1250	–	+0.0050/ -0.0000	–	–	–
			Q	–	0.3700	–	+0.0020/ -0.0000	–	–
			R	0.1890	–	+0.0050/ -0.0010	–	–	–
	2411223-5	11	P	0.1250	–	+0.0050/ -0.0000	–	–	–
			Q	–	0.3700	–	+0.0020/ -0.0000	–	–
			R	0.1900	–	+0.0010/ -0.0000	–	–	–
18	Bolt - NAS464P3A16	4	R, S	–	0.1894	–	+0.0000/ -0.0009	–	–
19	Pin, Clevis - MS20392-2C55	5	R, S	–	0.1880	–	+0.0000/ -0.0020	–	–
20	Bushing - NAS77-3-31	5	S	0.1900	–	+0.0015/ -0.0000	–	–	–
			T	–	0.3136	–	+0.0000/ -0.0005	–	–
21	Handle Assy. - 2311301-11, -15	4	T	0.1890	–	+0.0050/ -0.0010			
	2411222-1 (Alt. 2411222-2)	5	T	0.3121	–	+0.0005/ -0.0000	–	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 13)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
22	Block Assy., Bearing, Fwd - 2311305-3, -9, -23	1	U	1.0000	–	+0.0005/ -0.0005	–	–	–
23	Block Assy., Bearing, Aft - 2311305-4, -10, -24	1	V	1.0000	–	+0.0005/ -0.0005	–	–	–
24	Plate, Retaining - 2311309-2	1	W	0.6870	–	+0.0030/ -0.0030	–	–	–
25	Eccentric, Fwd - 2311306-1, -2	13	W	–	0.6200	–	+0.0100/ -0.0100	–	–
			X	0.1880	–	+0.0050/ -0.0010	–	–	–
			Y	0.5000	–	+0.0060/ -0.0000	–	–	–
	2481108-1	14	W	–	0.6200	–	+0.0100/ -0.0100	–	–
			X	0.1880	–	+0.0050/ -0.0010	–	–	–
			Y	0.5000	–	+0.0060/ -0.0000	–	–	–
	2311306-3	15	W	–	0.6200	–	+0.0100/ -0.0100	–	–
			X	0.1880	–	+0.0050/ -0.0010	–	–	–
			Y	0.5000	–	+0.0060/ -0.0000	–	–	–
	2311306-4	16	W	–	0.6200	–	+0.0100/ -0.0100	–	–
			X	0.1880	–	+0.0050/ -0.0010	–	–	–
			Y	0.5000	–	+0.0060/ -0.0000	–	–	–
26	Pin, Clevis - MS20392-2C31	17	X, Z	–	0.1860	–	+0.0000 / -0.0020	–	–
	HL18-6-14	18	X, Z	–	0.1860	–	+0.0000 / -0.0020	–	–
27	Plug, Fwd - 2311305-11	1	Y	–	0.4900	–	+0.0050/ -0.0000	–	–
			Z	0.1880	–	+0.0050/ -0.0010	–	–	–
			AA	0.2492	–	+0.0010/ -0.0000	–	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 13)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
28	Tube, Torque - 2311305-22	1	AB	0.2492	–	+0.0010/ -0.0000	–	–	–
29	Bolt - NAS464P4-15	1	AA, AB AC	–	0.2492	–	+0.0000/ -0.0009	–	–
30	Plug, Aft - 2311305-11, -26	19	AC	0.2492	–	+0.0010/ -0.0000	–	–	–
			AD	0.1880	–	+0.0050/ -0.0010	–	–	–
			AE	–	0.4900	–	+0.0050/ -0.0000	–	–
31	Eccentric, Aft - 2311307-1	21	AE	0.5000	–	+0.0060/ -0.0010	–	–	–
			AF	0.1880	–	+0.0050/ -0.0010	–	–	–
	2311307-2	22	AE	0.5000	–	+0.0060/ -0.0010	–	–	–
			AF	0.1880	–	+0.0050/ -0.0010	–	–	–
32	Pin, Clevis - MS20392-2C31	17	X, Z	–	0.1860	–	+0.0000 / -0.0020	–	–
	HL18-6-14	18	X, Z	–	0.1860	–	+0.0000 / -0.0020	–	–
33	Fitting Assy., Torsion Bar - 2311272-19	1	AG	–	0.2450	–	+0.0030/ -0.0020	–	–
34	Link - 2311272-5, -23	1	AG	0.2500	–	+0.0100/ -0.0100	–	–	–
			AH	0.3160	–	+0.0100/ -0.0100	–	–	–
35	Bushing - NAS75-3-11	1	AJ	0.1900	–	+0.0015/ -0.0000	–	–	–
			AK	–	0.3136	–	+0.0000/ -0.0005	–	–
36	Screw - NAS221-8	1	AH, AJ AK	–	0.1875	–	+0.0015/ -0.0015	–	–
37	Bar Assy., Torsion - 2311272-20	1	AK	0.3160	–	+0.0100/ -0.0100	–	–	–
			AL	–	0.2450	–	+0.0030/ -0.0000	–	–
38	Bearing Assy., End - 2311272-8	1	AL	0.3440	–	+0.0100/ -0.0100	–	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 13)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
39	Arm, Door Latch - 2311273-1, -2, -3, -5 (Alt. 2311273-7) (Alt. 2311273-9)	1	AM	0.4950	–	+0.0050/ -0.0000	–	–	–
40	Arm, Door Latch, Center Fwd - 2311274-1, -3, -5, -7 (Alt. 2311274-9) (Alt. 2311274-11) (Alt. 2311274-13) (Alt. 2311274-15)	1	AN	0.4950	–	+0.0050/ -0.0000	–	–	–
41	Arm, Door Latch, Center Aft - 2311274-2, -4, -6, -8 (Alt. 2311274-10) (Alt. 2311274-12) (Alt. 2311274-14) (Alt. 2311274-16)	1	AP	0.4950	–	+0.0050/ -0.0000	–	–	–
42	Hinge Half, Fuselage - 2311280-16-96	24	AQ	0.0700	–	+0.0000/ -0.0050	–	–	–
43	Hinge Half, Fuselage - 2411282-4, -5, -12, -20, -23, -024	25	AQ	0.0700	–	+0.0000/ -0.0050	–	–	–
44	Hinge Half, Door - 2311280-17	24	AQ	0.0700	–	+0.0000/ -0.0050	–	–	–
45	Hinge Half, Door - 2411282-3, -9, -11, -16, -19, -21, -22, -96	25	AQ	0.0700	–	+0.0000/ -0.0050	–	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 13)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Plate - 2311271-17	1	A	Replace worn part.
2	Housing - 2311291-2	2	AQ	Replace worn part.
3	Guide Assy., Pin - 2511278-1	3	B	Replace worn part.
4	Pin, Door - 2311291-6	1	A, B, C	Replace worn part.
5	Pin, Clevis - MS20392-2C17	1	C, D, E F, G	Replace worn part.
6	Turnbuckle - AN165H32LS	22	D	Replace worn part.
	Turnbuckle - 2411242-1	23	D	Replace worn part.
7	Turnbuckle - AN165H32RS	22	E	Replace worn part.
	Turnbuckle - 2411242-2	23	E	Replace worn part.
8	Bushing - AA226-1	1	D, E	Replace worn part.
9	Crank, Lower Door - 2311293-1	4	F	Replace worn part.
	2411224-1	5	F	Replace worn part.
10	Pin, Door, Aft - 2311491-16	1	G, H, J	Replace worn part.
11	Guide Assy., Pin - 2311271-12	1	H	Replace worn part.
12	Plate - 2311271-17	1	J	Replace worn part.
13	Pan Assy. - 2311229-2	6	K	Replace worn part.
	2311300-1	7	K	Replace worn part.
	2381403-2	8	K	Replace worn part.
	2411221-1	9	K	Replace worn part.
	2411221-3, -6	10	K	Replace worn part.
14	Bushing - 2411223-2	1	K, L	Replace worn part.
15	Bushing - 2311340-5	11	M, N	Replace worn part.
16	Pin, Spring - NAS561P4-8 (Alt. NAS561P4-10)	11	N, P	Replace worn part.
17	Shaft, Handle - 2311302-1	12	P, Q, R	Replace worn part.
	2411223-5	11	P, Q, R	Replace worn part.
18	Bolt - NAS464P3A16	4	R, S	Replace worn part.
19	Pin, Clevis - MS20392-2C55	5	R, S	Replace worn part.
20	Bushing - NAS77-3-31	1	S, T	Replace worn part.
21	Handle Assy. - 2311301-11, -15	4	T	Replace worn part.
	2411222-1 (Alt. 2411222-2)	5	T	Replace worn part.
22	Block Assy., Fwd Bearing, - 2311305-3, -9, -23	1	U	Replace worn part.
23	Block Assy., Aft Bearing, - 2311305-4, -10, -24	1	V	Replace worn part.
24	Plate, Retaining - 2311309-2	1	W	Replace worn part.
25	Eccentric, Fwd - 2311306-1, -2	13	W, X, Y	Replace worn part.
	2481108-1	14	W, X, Y	Replace worn part.
	2311306-3	15	W, X, Y	Replace worn part.
	2311306-4	16	W, X, Y	Replace worn part.
26	Pin, Clevis - MS20392-2C31	17	X, Z	Replace worn part.
	HL18-6-14	18	X, Z	Replace worn part.

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 13)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
27	Plug, Fwd - 2311305-11		Y, Z AA	Replace worn part.
28	Tube, Torque - 2311305-22	1	AB	Replace worn part.
29	Bolt - NAS464P4-15	1	AA, AB, AC	Replace worn part.
30	Plug, Aft - 2311305-11, -26	19	AC, AD AE	Replace worn part.
31	Eccentric, Aft - 2311307-1	20	AE, AF	Replace worn part.
	2311307-2	21	AE, AF	Replace worn part.
32	Pin, Clevis - MS20392-2C31	17	AD, AF	Replace worn part.
	HL18-6-14	18	X,Z	Replace worn part.
33	Fitting Assy., Torsion Bar - 2311272-19	1	AG	Replace worn part.
34	Link - 2311272-5, -23	1	AG, AH	Replace worn part.
35	Bushing - NAS75-3-11	1	AJ, AK	Replace worn part.
36	Screw - NAS221-8	1	AH, AJ, AK	Replace worn part.
37	Bar Assy., Torsion - 2311272-20	1	AK, AL	Replace worn part.
38	Bearing Assy., End - 2311272-8	1	AL	Replace worn part.
39	Arm, Door Latch - 2311273-1, -2, -3, -5 2311273-7 2311273-9	1	AM	Replace worn part.
40	Arm, Door Latch, Center Fwd - 2311274-1, -3, -5, -7 2311274-9 2311274-11 2311274-13 2311274-15	1	AN	Replace worn part.
41	Arm, Door Latch, Center Aft - 2311274-2, -4, -6, -8 2311274-10 2311274-12 2311274-14 2311274-16	1	AP	Replace worn part.
42	Hinge Half, Fuselage - 2311280-16, -96	24	AQ	Replace worn part.
43	Hinge Half, Fuselage - 2411282-4, -5, -12, -20, -23, -024	25	AQ	Replace worn part.
44	Hinge Half, Door - 2311280-17	24	AQ	Replace worn part.
45	Hinge Half, Door - 2411282-3, -9, -11, -16, -19, -20, -22, -96	25	AQ	Replace worn part.

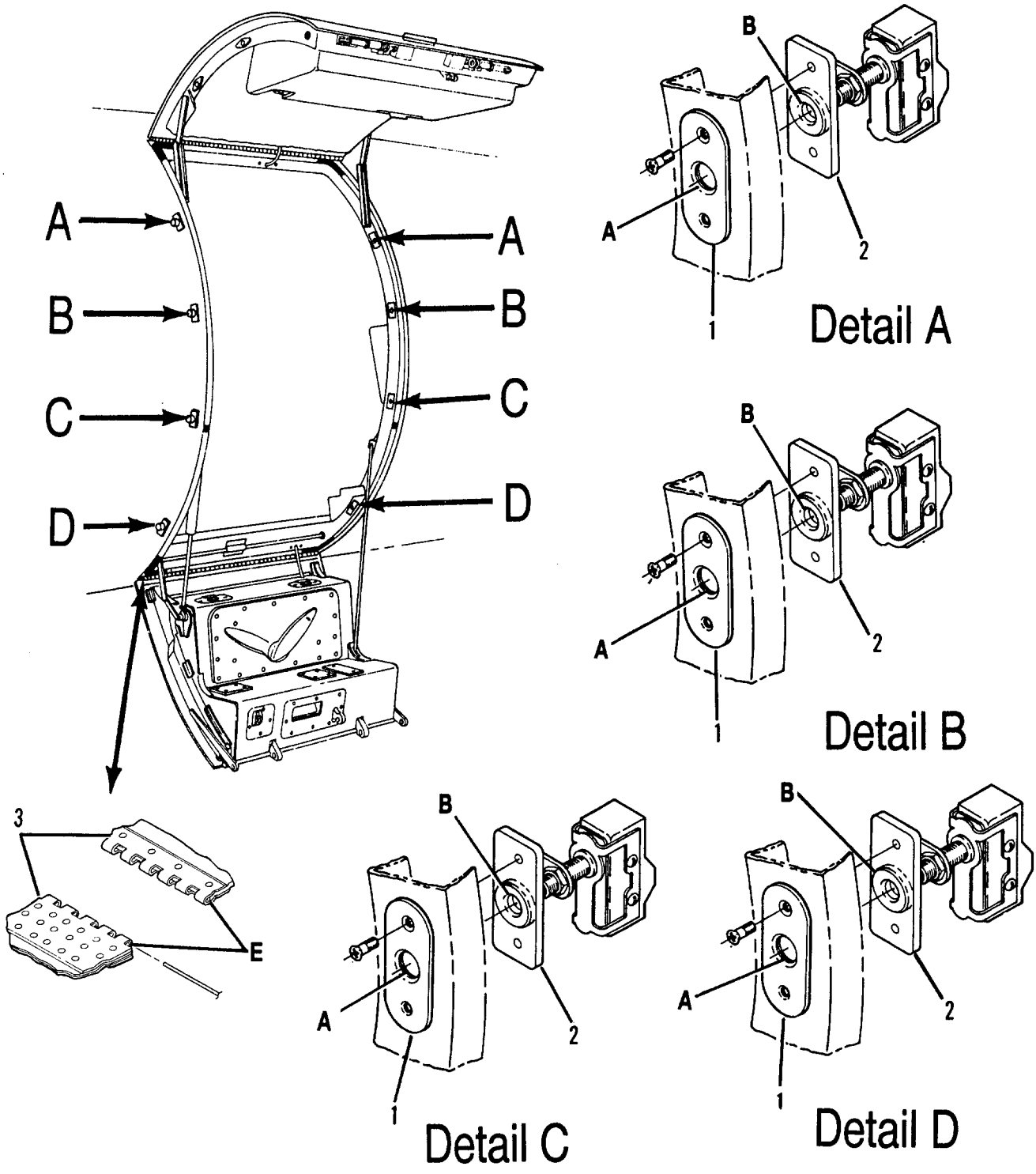
Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 13)

CODES	EFFECTIVITIES

NOTE: The following effectivities are applicable provided *Aircraft is Equipped with 36-Inch Passenger/Crew Door*.

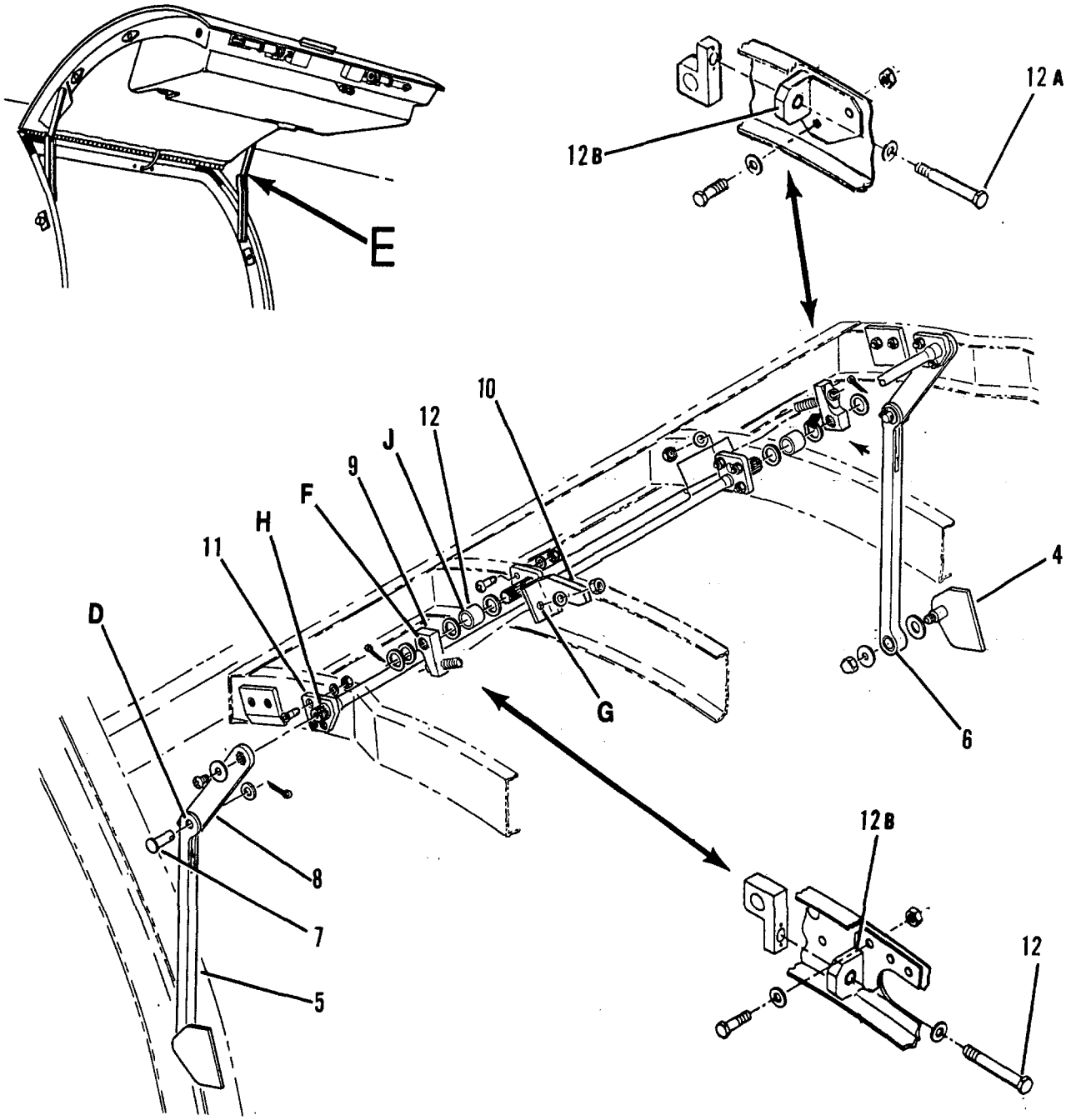
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 thru 24-159; 25-001 thru 25-009
3	24-160 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
4	23-001 thru 23-099; 24-100 thru 24-209; 25-001 thru 25-049
5	24-210 and Subsequent; 25-050 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
6	23-001 thru 23-049 Except Aircraft Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"
7	23-050 thru 23-099 Except Aircraft Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"
8	23-001 thru 23-099 When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 24-100 thru 24-209 When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 25-001 thru 25-049 When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"
9	24-210 thru 24-229; 25-250 thru 25-066, Except 25-061
10	24-230 thru 24-049; 25-061, 25-067 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
11	23-001 thru 23-099 When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 24-210 and Subsequent and Prior Aircraft Modified By AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 25-050 and Subsequent and Prior Aircraft Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
12	23-001 thru 23-099 Except When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 24-100 thru 24-209 Except When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"; 25-001 thru 25-049 Except When Modified by AMK 74-2 "Lower Cabin Door Handle Installation Improvement"
13	23-001 thru 23-039 Except When Modified by SSK 909 "Replacement of Cabin Door Lock Actuator"
14	23-001 thru 23-017 Except When Modified by SSK 909 "Replacement of Cabin Door Lock Actuator"
15	23-040 thru 23-044 Except When Modified by SSK 909 "Replacement of Cabin Door Lock Actuator"
16	23-045 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
17	23-018 thru 23-099 and Prior Aircraft Modified by SSK 909 "Replacement of Cabin Door Lock Actuator"
18	24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
19	23-018 thru 23-099 Except When Modified by AAK 71-1 "Cabin Door Hook Manual Release Kit"; 24-100 thru 24-219 Except When Modified by AAK 71-1 "Cabin Door Hook Manual Release Kit"; 25-001 thru 25-059 Except When Modified by AAK 71-1 "Cabin Door Hook Manual Release Kit"
20	23-018 thru 23-099 When Modified by AAK 71-1 "Cabin Door Hook Manual Release Kit"; 24-220 and Subsequent and Prior Aircraft Modified by AAK 71-1 "Cabin Door Hook Manual Release Kit"
21	23-001 thru 23-017 Except When Modified by AAK 71-1 "Cabin Door Hook Manual Release Kit"
22	35-001 thru 35-400; 36-001 thru 36-047
23	31-001 and Subsequent; 35-401 and Subsequent; 36-048 and Subsequent, and Prior Aircraft Equipped With 2311291-6 Door Pin

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 13)



2-19C-1
2-7C

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 16)

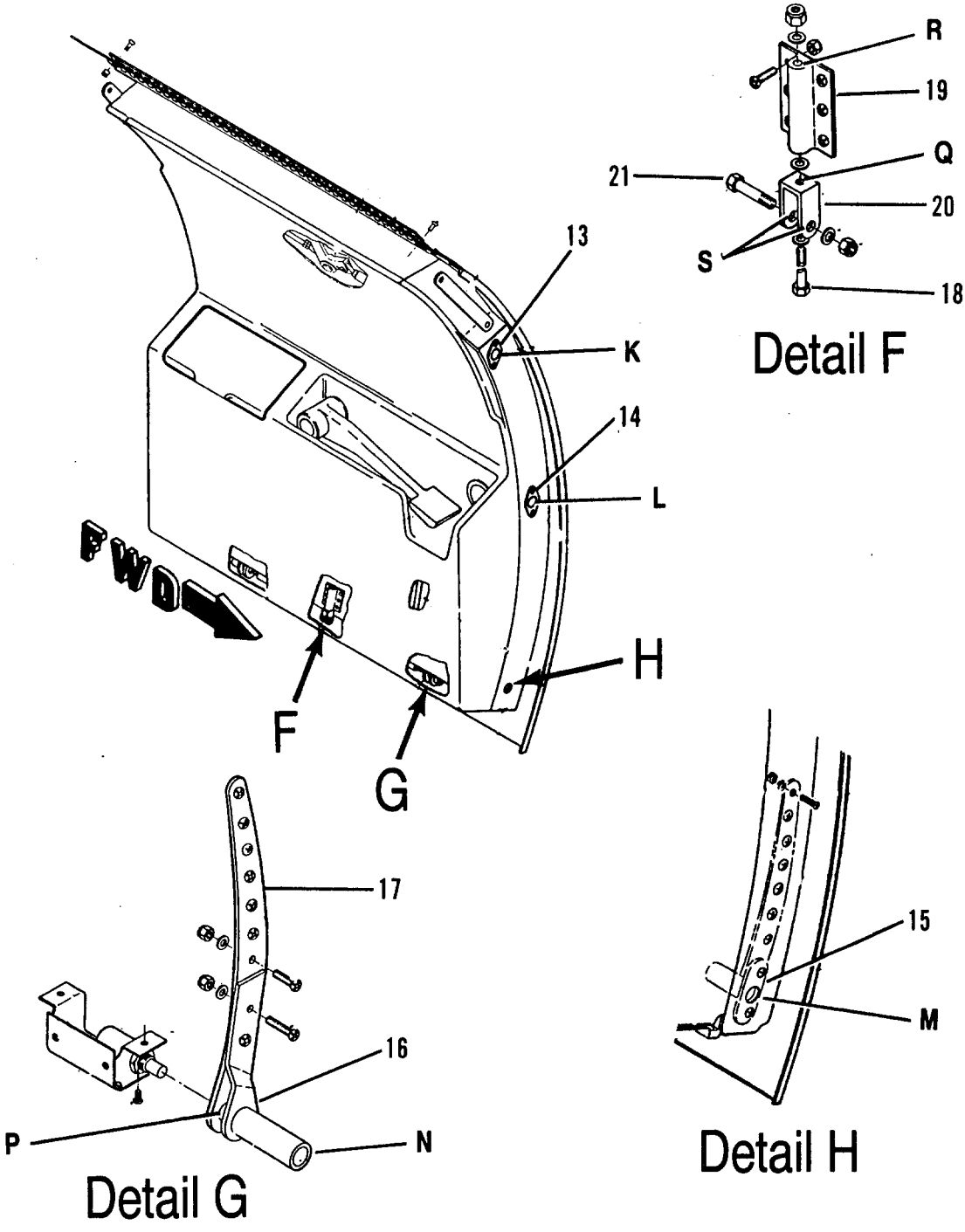


Detail E

2-36C-2

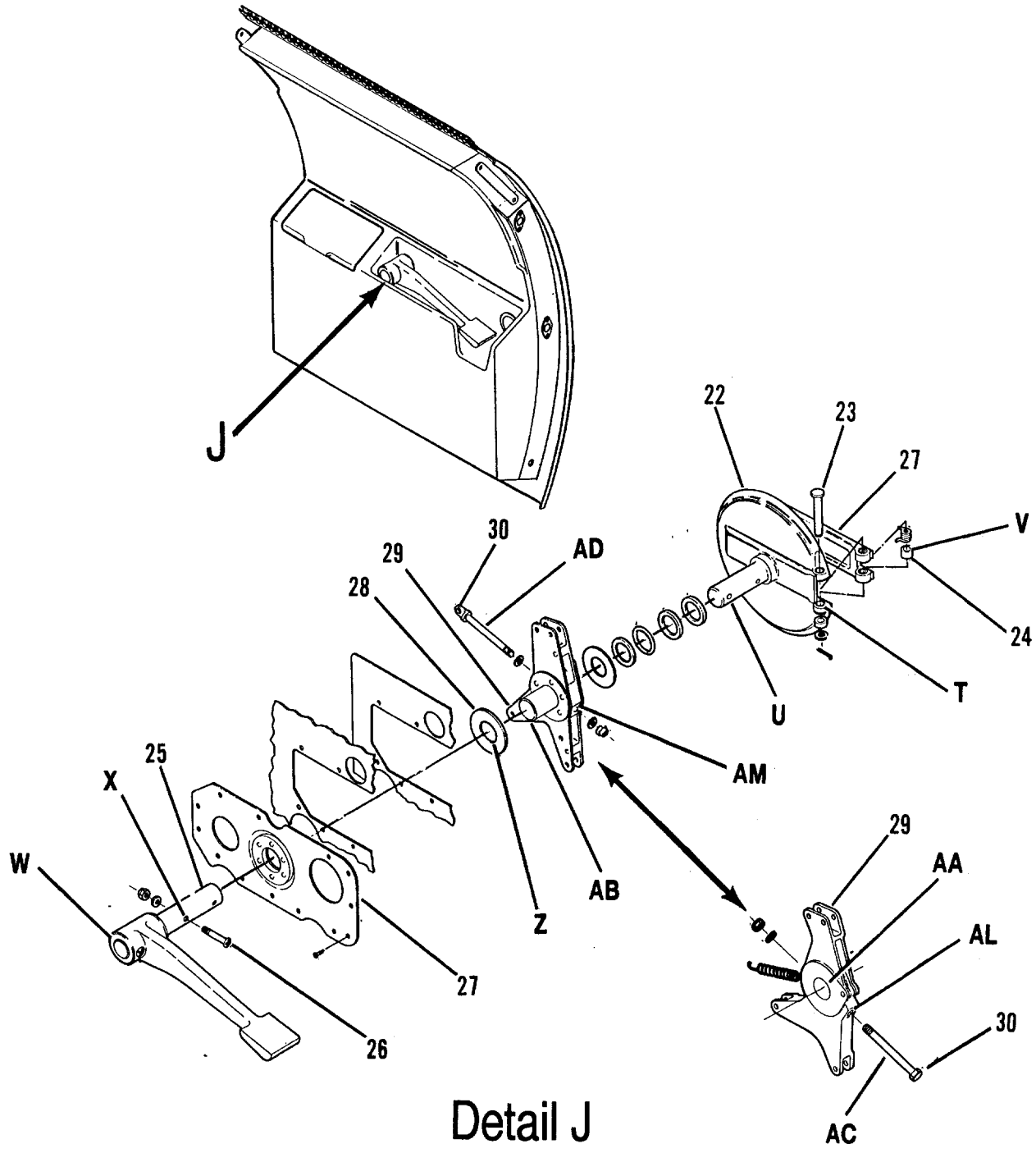
Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 16)

PASSENGER/CREW UPPER DOOR - ALLOWABLE WEAR AND REPAIR DATA



2-3C-1
2-5C
2-3C-2

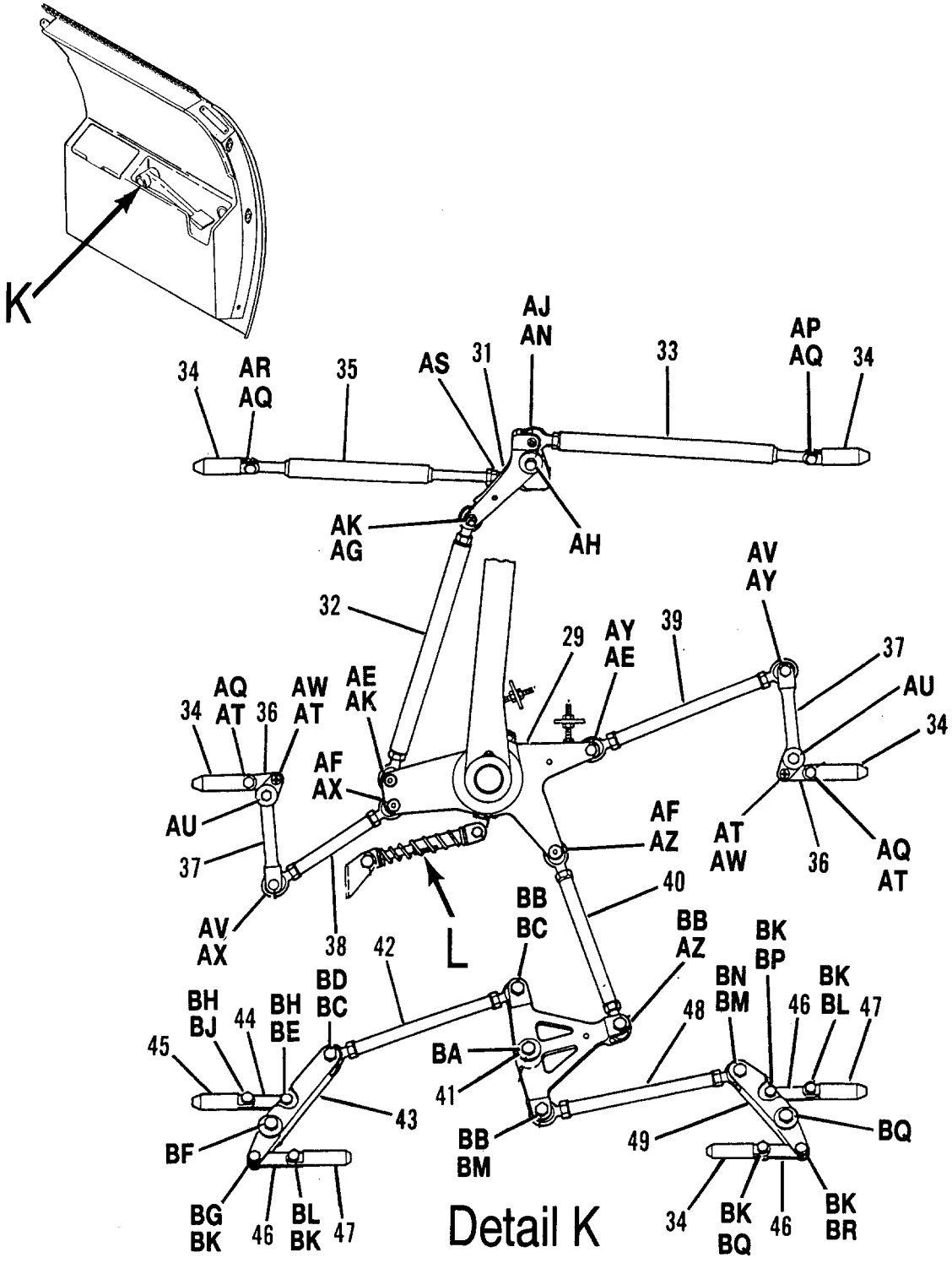
Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 16)



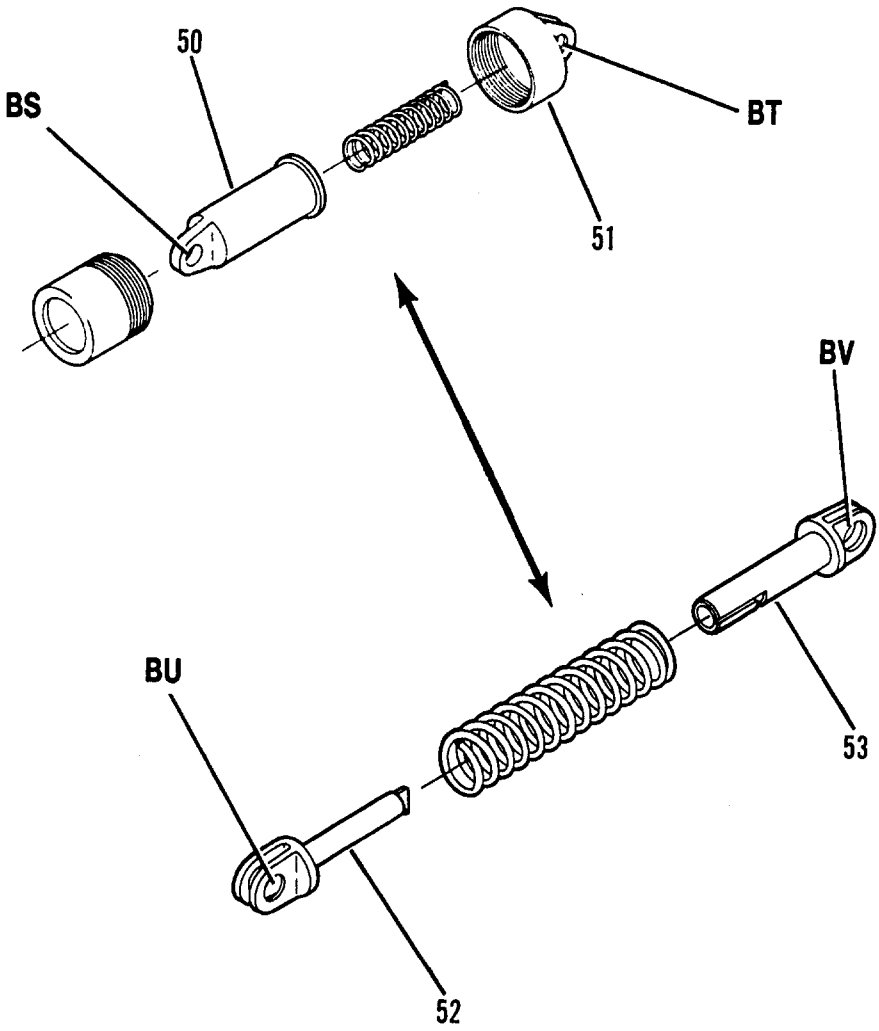
Detail J

B8-10C
B4-6A
C4-5B-1

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 16)



Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 16)



Detail L

J2-5C
K2-1C-4

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Plate - 2511281-6, -7	1	A	0.8280	–	–	–	–	–
2	Fitting Assy., Pin Guide - 2511286-9, -10, -13, -15	1	B	0.5625	–	+0.0020 -0.0000	–	–	–
3	Hinge Assy., - 2511283-1, -6, -7, -11	1	E	0.0700	–	+0.0000 -0.0050	–	–	–
4	Support, Torsion Bar - 2411682-7, -8, -11, -12, -19, -20, -29, -30, -33, -34	1	B	–	0.4300	–	+0.0090/ -0.0000	–	–
5	Link Assy., Lower Arm - 2411681-19, -21	1	C	0.6259	–	+0.0000/ -0.0005	–	–	–
6	Bushing - DBS-7-030 (Alt. - AJ07C-125)	1	C	–	–	–	–	–	–
7	Pin, Clevis - MS20392-3C17	1	D	–	0.2480	–	+0.0000/ -0.0020	–	–
8	Link, Upper Torsion - 2511301-9	1	D	0.2500	–	+0.0040/ -0.0010	–	–	–
9	Arm Assy., - 2511301-1, -801, -802	1	F	0.4125	–	+0.0020/ -0.0000	–	–	–
10	Angle, Torque Adjustment Support, Fwd & Aft - 2511301-4, -3	1	G	0.1890	–	+0.0050/ -0.0000	–	–	–
11	Plate, Bearing - 2311688-9	1	H	0.4390	–	+0.0050/ -0.0000	–	–	–
12	Spacer - NAS43HT7-18	1	J	0.4650	0.5600	+0.0250/ -0.0250	+0.0180 -0.0120	–	–
13	Bracket Assy., Pin Guide - 2411294-1, -2, -3, -4, -5	2	K	0.5620	–	+0.0080/ -0.0010	–	–	–
	Plate - 2411496-63, -265, -266	3	K	0.7500	–	+0.0050/ -0.0000	–	–	–
14	Guide Assy., Pin - 2411491-1, -5, -7	2	L	0.5620	–	+0.0080/ -0.0010	–	–	–
	Plate - 2411496-63	3	L	0.7500	–	+0.0050/ -0.0000	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
15	Guide Assy., - 2411497-1, -2, -7, -8	1	M	0.5620	–	+0.0080/ -0.0000	–	–	–
16	Guide Assy., - 2411493-7, -11	1	N	0.4950	–	+0.0050/ -0.0010	–	–	–
17	Arm, Guide - 2311278-3, -4, -6	1	P	0.4950	–	+0.0050/ -0.0000	–	–	–
18	Bolt - AN4-27A	1	Q, R	–	0.2480	–	+0.0010/ -0.0020	–	–
19	Guide - 2311502-12	1	R	0.2500	–	+0.0050/ -0.0010	–	–	–
20	Clevis - 2311502-11	1	Q	0.2500	–	+0.0050/ -0.0010	–	–	–
21	Bolt - NAS464P5A12	1	S	–	0.3117	–	+0.0000/ -0.0009	–	–
22	Cover Assy., Outer Handle - 2311287-3, -4	1	T	0.1880	–	+0.0100/ -0.0000	–	–	–
			U	–	0.8600	–	+0.0000/ -0.0050	–	–
23	Pin, Clevis - MS20392-2C63	1	T	–	0.1880	–	+0.0000/ -0.0020	–	–
24	Spacer - NAS43DD3-26, -22	1	V	0.2140	0.3120	+0.0200/ -0.0200	+0.0100/ -0.0100	–	–
25	Tube, Handle - 2511293-2, -44	2	W	–	1.0000	–	+0.0060/ -0.0060	–	–
	2411516-2, -4	3	W	–	0.1890	–	+0.0000/ -0.0010	–	–
		1	X	0.2492	–	+0.0010/ -0.0000	–	–	–
26	Bolt - NAS1103-16, -19	1	X	–	0.1885	–	+0.0010/ -0.0000	–	–
27	Cover Assy., - 2411496-355	1	Y	1.1250	–	+0.0030/ -0.0000	–	–	–
28	Spacer - 2511293-62	2	Z	1.0200	–	+0.0000/ -0.0000	–	–	–
	Bearing, Thrust - 2411515-1 -2	3	Z	1.2000	–	–	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
29	Quadrant Assy., - 2511287-1, -6, -9	2	AA	1.0060	–	+0.0050/ -0.0000	–	–	–
	2411517-1	3	AB	1.0050	1.1200	+0.0020/ -0.0000	+0.0000/ -0.0020	–	–
			AE	0.2492	–	+0.0010/ -0.0000	–	–	–
			AF	0.1894	–	+0.0010/ -0.0000	–	–	–
			AL	0.2492	–	+0.0010/ -0.0000	–	–	–
			AM	0.2500	–	+0.0005/ -0.0001	–	–	–
30	Bolt - NAS1154E40P	2	AC	–	0.2485	–	+0.0010/ -0.0000	–	–
	Eyebolt - 2411520-1	3	AD	–	0.2485	–	+0.0010/ -0.0000	–	–
31	Bellcrank Assy., Upper - 2511288-3	1	AG	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1894 far side	–	+0.0010/ -0.0000	–	–	–
			AH	0.4376	–	+0.0015/ -0.0000	–	–	–
			AJ	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1894 far side	–	+0.0010/ -0.0000	–	–	–
32	Rod Assy., Upper Bellcrank - 2511293-78	1	AK	–	–	–	–	–	–
33	Rod Assy., Upper Fwd - 2511293-51	1	AN	–	–	–	–	–	–
			AP	0.3160	–	+0.0005/ -0.0005	–	–	–
34	Pin, Locking - 2511293-36	1	AQ	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1894 far side	–	+0.0010/ -0.0000	–	–	–
35	Rod Assy., Upper Aft - 2511293-50, -80, -83	1	AR	–	–	–	–	–	–
			AS	0.3160	–	+0.0005/ -0.0005	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
36	Link, Pin - 2511293-28	1	AT	0.3160	–	+0.0005/ -0.0005	–	–	–
37	Bellcrank Assy., Aft - 2511289-3	1	AU	0.3160 far side	–	+0.0005/ -0.0005	–	–	–
				0.1894 near side	–	+0.0010/ -0.0000	–	–	–
			AV	0.4376	–	+0.0015/ -0.0000	–	–	–
			AW	0.3160 far side	–	+0.0005/ -0.0005	–	–	–
				0.1894 near side	–	+0.0010/ -0.0000	–	–	–
38	Rod Assy., Aft Bellcrank - 2511293-72	1	AX	–	–	–	–	–	–
39	Rod Assy., Fwd Bellcrank - 2511293-73	1	AY	–	–	–	–	–	–
40	Rod Assy., Ctr Bellcrank - 2511293-77	1	AZ	–	–	–	–	–	–
41	Bellcrank Assy., Lwr Ctr - 2511290-1	1	BA	0.5000	–	+0.0005/ -0.0000	–	–	–
			BB	0.3747	–	+0.0015/ -0.0000	–	–	–
	Bushing - NAS77-4-10	1	BB	0.6250	0.8142	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–
42	Rod Assy., Aft Bellcrank - 2511293-74	1	BC	–	–	–	–	–	–
43	Bellcrank Assy., Lwr Aft - 2511292-3, -5	2	BD	0.3747	–	+0.0015/ -0.0000	–	–	–
			BE	0.3160 far side	–	+0.0005/ -0.0005	–	–	–
				0.1894 near side	–	+0.0010/ -0.0000	–	–	–
			BF	0.5000	–	+0.0005/ -0.0000	–	–	–
			BG	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1894 far side	–	+0.0010/ -0.0000	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
	Bellcrank Assy., Lwr Aft - 2511285-1	3	BD	0.3770	–	+0.0005/ -0.0000	–	–	–
			BE	0.3160 far side	–	+0.0005/ -0.0005	–	–	–
				0.1900 near side	–	+0.0010/ -0.0000	–	–	–
			BF	0.5000	–	+0.0010/ -0.0000	–	–	–
			BG	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1900 far side	–	+0.0010/ -0.0000	–	–	–
44	Link, Pin - 2511293-30, -37, -60	1	BH	0.3160	–	+0.0005/ -0.0005	–	–	–
45	Pin, Locking - 2511293-29, -61, -36	1	BJ	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1894 far side	–	+0.0010/ -0.0000	–	–	–
46	Link, Pin - 2511293-30	1	BK	0.3160	–	+0.0005/ -0.0005	–	–	–
47	Pin, Locking - 2511293-35	1	BL	0.1894	–	+0.0010/ -0.0000	–	–	–
48	Rod Assy., Fwd Bellcrank - 2511293-74	1	BM	–	–	–	–	–	–
49	Bellcrank Assy., Lwr Aft - 2511291-5	1	BN	0.3747	–	+0.0015/ -0.0000	–	–	–
			BP	0.3160 far side	–	+0.0005/ -0.0005	–	–	–
				0.1894 near side	–	+0.0010/ -0.0000	–	–	–
			BQ	0.5000	–	+0.0005/ -0.0000	–	–	–
			BR	0.3160 near side	–	+0.0005/ -0.0005	–	–	–
				0.1894 far side	–	+0.0010/ -0.0000	–	–	–
	Bushing - NAS77-4-10 ▷1		BN	0.6250	0.8142	+0.0015/ -0.0000	+0.0000/ -0.0010	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 16)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
50	Housing - 2411236-1	2	BM	0.3440	–	–	–	–	–
51	Cap - 2411237-3	2	BN	0.3440	–	–	–	–	–
52	Pin, Guide - 5415578-3, -6	3	BP	0.3230	–	+0.0005/ -0.0000	–	–	–
53	Sleeve - 5415578-2, -7	3	BQ	0.3230	–	+0.0005/ -0.0000	–	–	–

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 12 of 16)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Plate - 2311281-6, -7	1	A	Replace worn part.
2	Fitting Assy., Pin Guide - 2511286-9, -10, -13, -15	1	B	Replace worn part.
3	Hinge Assy., - 2511283-1, -6, -7, -11	1	E	Replace worn part.
4	Support, Torsion Bar - 2411682-7, -8, -11, -12, -19, -20, -29, -30, -33, -34	1	B	Replace worn part.
5	Link Assy., Lower Arm - 2411681-19, -21	1	C	Replace worn part.
6	Bushing - DBS-7-030 (Alt. - AJ07C-125)	1	C	Replace worn part.
7	Pin, Clevis - MS20392-3C17	1	D	Replace worn part.
8	Link Upper Torsion - 2511301-9	1	D	Replace worn part.
9	Arm Assy., - 2511301-1, -801, -802	1	F	Replace worn part.
10	Angle, Torque Adjustment Support, Fwd & Aft - 2511301-4, -3	1	G	Replace worn part.
11	Plate, Bearing - 2311688-9	1	H	Replace worn part.
12	Spacer - NAS43HT7-18	1	J	Replace worn part.
13	Bracket Assy., Pin Guide - 2411294-1, -2, -3, -4, -5	2	K	Replace worn part.
	Plate - 2411496-63, -265, -266	3	K	Replace worn part.
14	Guide Assy., Pin - 2411491-1, -5, -7	2	L	Replace worn part.
	Plate - 2411496-63	3	L	Replace worn part.
15	Guide Assy., - 2411497-1, -2, -7, -8	1	M	Replace worn part.
16	Guide Assy., - 2411493-7, -11	1	N	Replace worn part.
17	Arm Guide - 2311278-3, -4, -6	1	P	Replace worn part.
18	Bolt - AN4-27A	1	Q,R	Replace worn part.
19	Guide - 2311502-12	1	R	Replace worn part.
20	Clevis - 2311502-11	1	Q	Replace worn part.
21	Bolt - NAS464P5A12	1	S	Replace worn part.
22	Cover Assy., Outer Handle - 2311287-3, -4	1	T,U	Replace worn part.
23	Pin, Clevis - MS20392-2C63	1	T	Replace worn part.
24	Spacer - NAS43DD3-26, -22	1	V	Replace worn part.
25	Tube, Handle - 2511293-2, -44	2	W	Replace worn part.
	2411516-2, -4	3	W	Replace worn part.
26	Bolt - NAS1103-16, -19	1	X	Replace worn part.
27	Cover Assy., - 2411496-355	1	Y	Replace worn part.
28	Spacer - 2511293-62	2	Z	Replace worn part.
	Bearing, Thrust - 2411515-1, -2	3	Z	Replace worn part.
29	Quadrant Assy., 2511287-1, -6, -9	2	AA	Replace worn part.
	2411517-1	3	AB,AE AF,AL AM	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 13 of 16)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
30	Bolt - NAS1154E40P	2	AC	Replace worn part.
	Eyebolt - 2411520-1	3	AD	Replace worn part.
31	Bellcrank Assy., Upper - 2511288-3	1	AG, AH AJ	Replace worn part.
32	Rod Assy., Upper Bellcrank - 2511293-78	1	AK	Replace worn part.
33	Rod Assy., Upper Fwd - 2511293-51	1	AN, AP	Replace worn part.
34	Pin, Locking - 2511293-36	1	AQ	Replace worn part.
35	Rod Assy., Upper Aft - 2511293-50, -80, -83	1	AR, AS	Replace worn part.
36	Link, Pin - 2511293-28	1	AT	Replace worn part.
37	Bellcrank Assy., Aft - 2511289-3	1	AU, AV AW	Replace worn part.
38	Rod Assy., Aft Bellcrank - 2511293-72	1	AX	Replace worn part.
39	Rod Assy., Fwd Bellcrank - 2511293-73	1	AY	Replace worn part.
40	Rod Assy., Ctr Bellcrank - 2511293-77	1	AZ	Replace worn part.
41	Bellcrank Assy., Lwr Ctr - 2511290-1	1	BA, BB	Replace worn part.
	Bushing - NAS77-4-10	1	BB	Replace worn part.
42	Rod Assy., Aft Bellcrank - 2511293-74	1	BC	Replace worn part.
43	Bellcrank Assy., Lwr Aft - 2511292-3, -5	2	BD, BE BF, BG	Replace worn part.
	Bellcrank Assy., Lwr Aft - 2511285-1	3	BD, BE BF, BG	Replace worn part.
44	Link Pin - 2511293-30, -37, -60	1	BH	Replace worn part.
45	Pin, Locking - 2511293-29, -61, -36	1	BJ	Replace worn part.
46	Link, Pin - 2511293-30	1	BK	Replace worn part.
47	Pin, Locking - 2511293-35	1	BL	Replace worn part.
48	Rod Assy., Fwd Bellcrank - 2511293-74	1	BM	Replace worn part.
49	Bellcrank Assy., Lwr Aft - 2511291-5	1	BN, BP BQ, BR	Replace worn part.
	Bushing - NAS77-4-10 ▷1	1	BN	Replace worn part.
50	Housing - 2411236-1	2	BM	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 14 of 16)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
51	Cap - 2411237-3	2	BN	Replace worn part.
52	Pin, Guide - 5415578-3, -6	3	BP	Replace worn part.
53	Sleeve - 5415578-2, -7	3	BQ	Replace worn part.

Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 15 of 16)

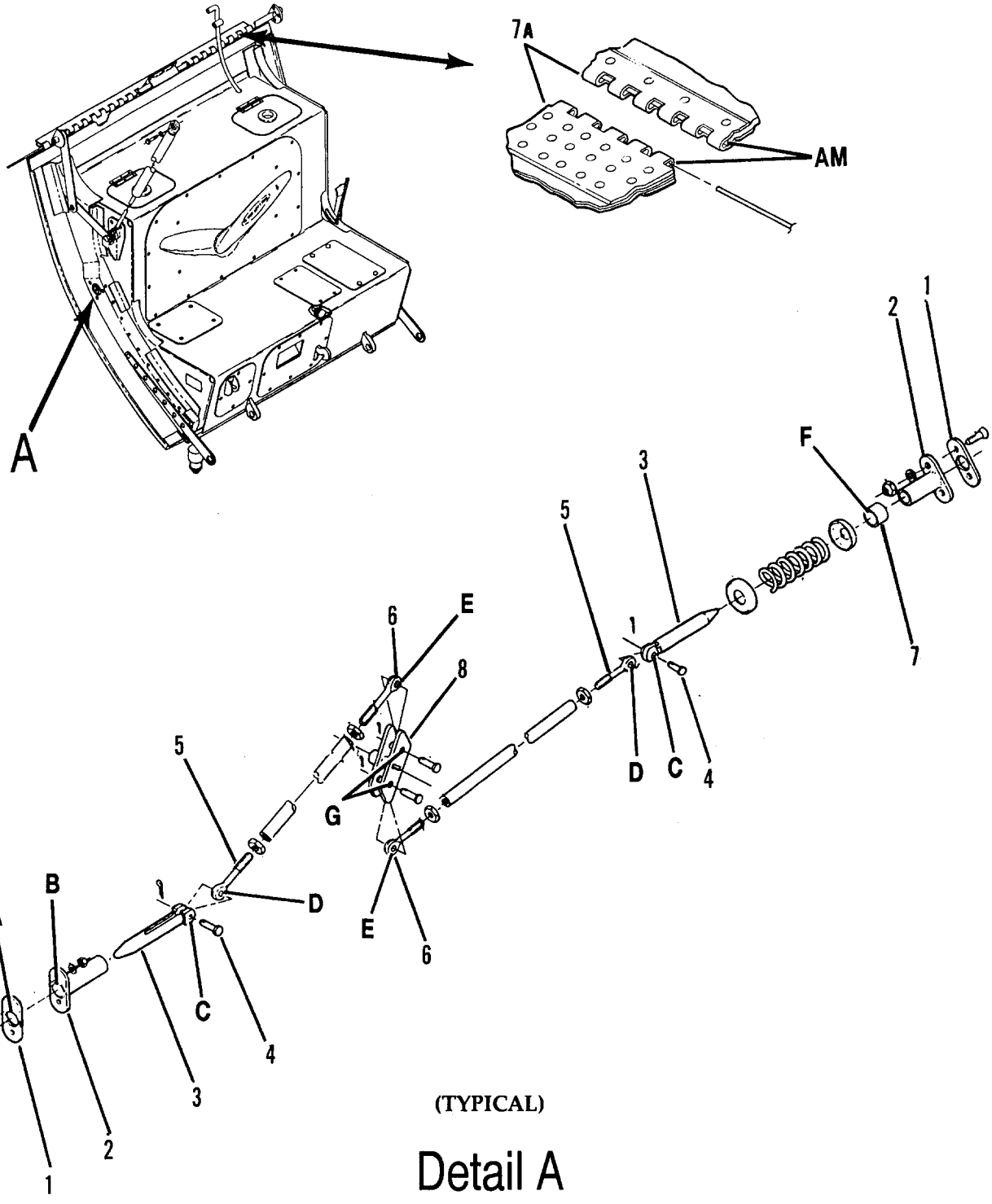
CODES	EFFECTIVITIES
	NOTE: The following effectivities are applicable provided *Aircraft is Equipped with 24-Inch Passenger/Crew Door*.
1	24-272, 24-295 and Subsequent; 25-134, 25-168 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	24-272; 25-134; 28-001 and 28-002; 31-001 thru 31-091; 35-001; 36-001 and 36-002
3	24-295 and Subsequent; 25-168 and Subsequent; 28-003 and Subsequent; 29-001 and Subsequent; 31-092 and Subsequent; 35-002 and Subsequent; 36-003 and Subsequent

NOTES:

1. Apply wet primer in bore prior to bearing installation.

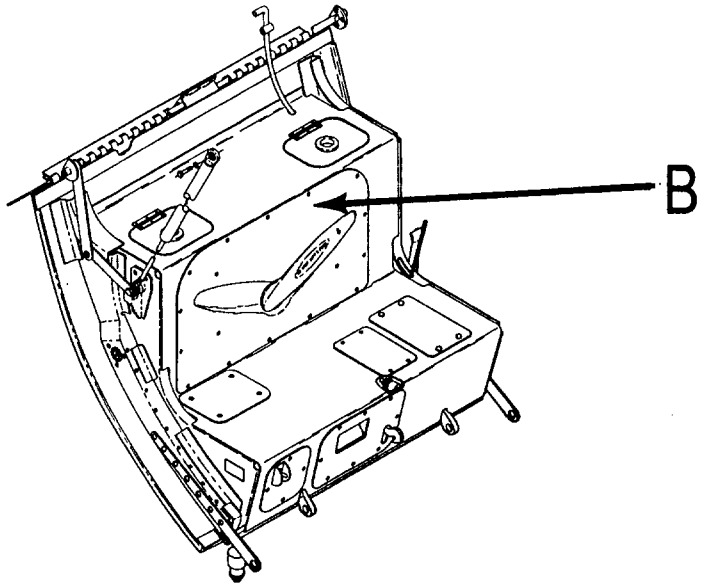
Passenger/Crew Upper Door - Allowable Wear and Repair Data
Figure 1 (Sheet 16 of 16)

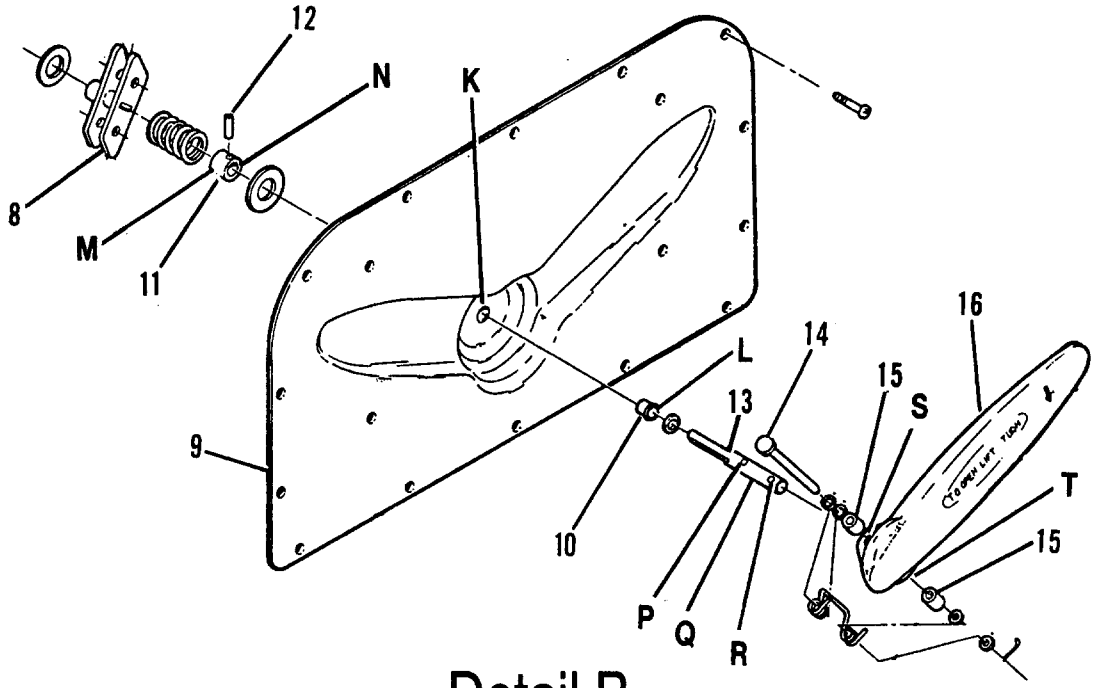
PASSENGER/CREW LOWER DOOR - ALLOWABLE WEAR AND REPAIR DATA



2-14C

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 10)

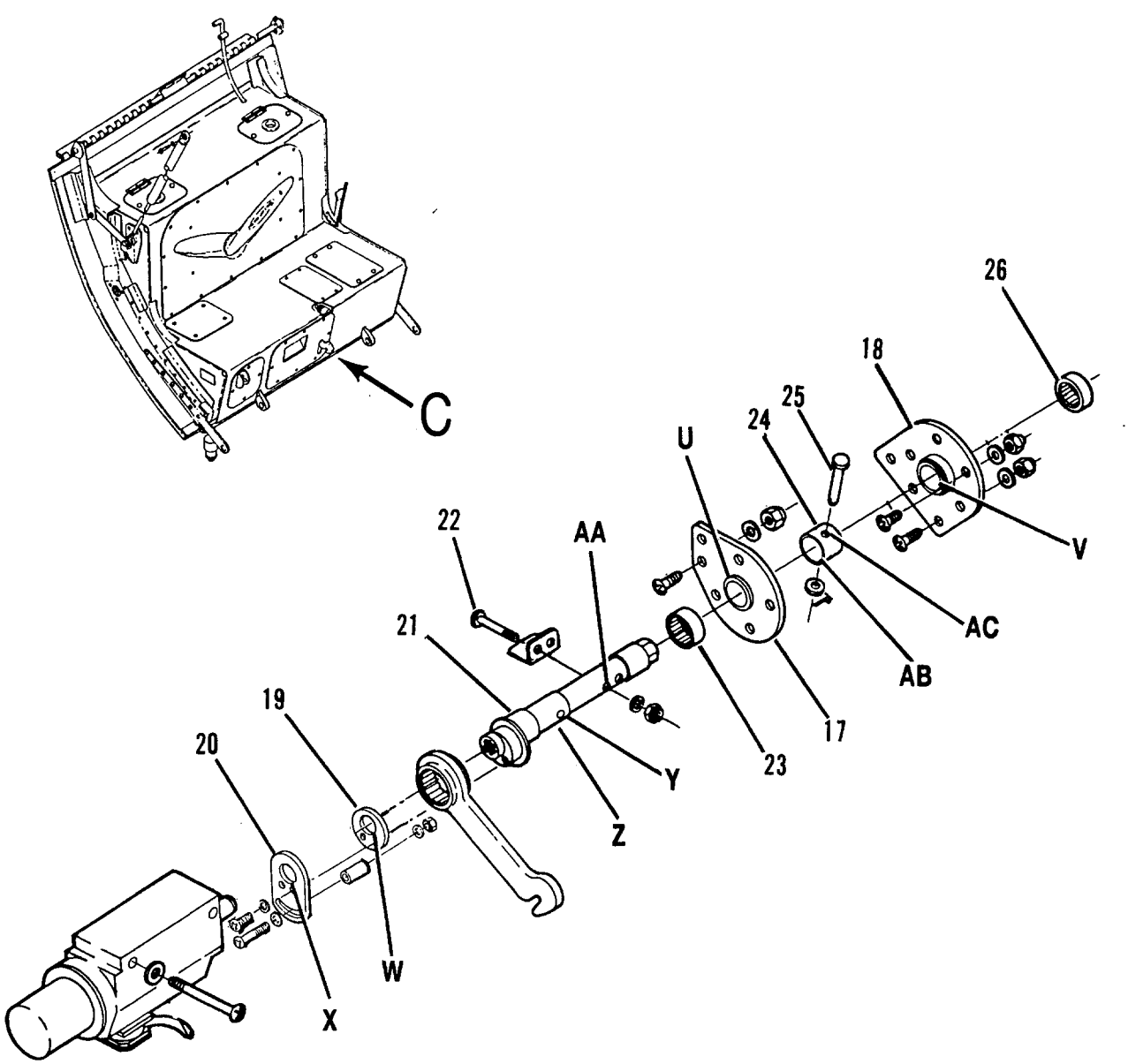




Detail B

2-14C
2-55C

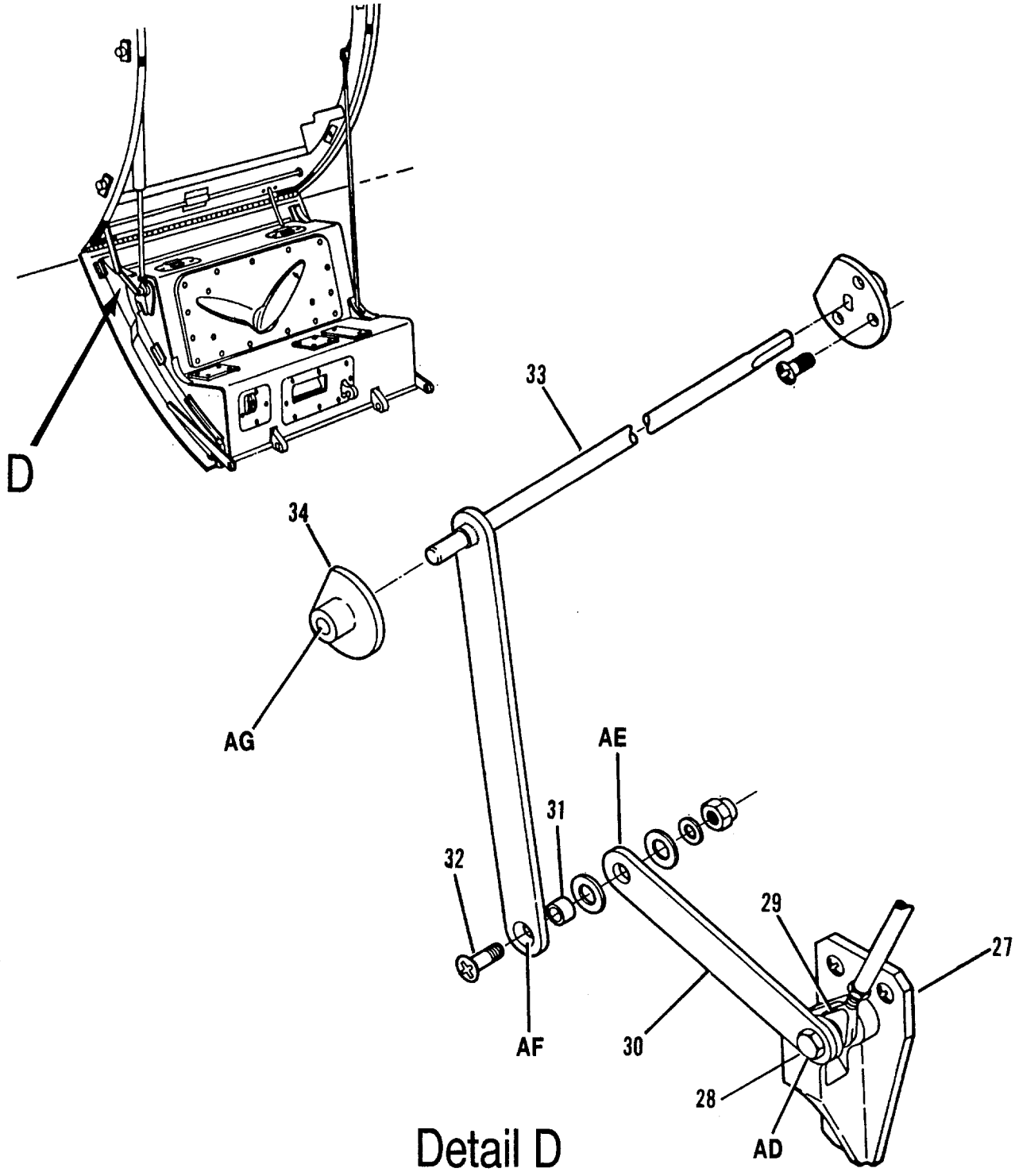
Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 10)



Detail C

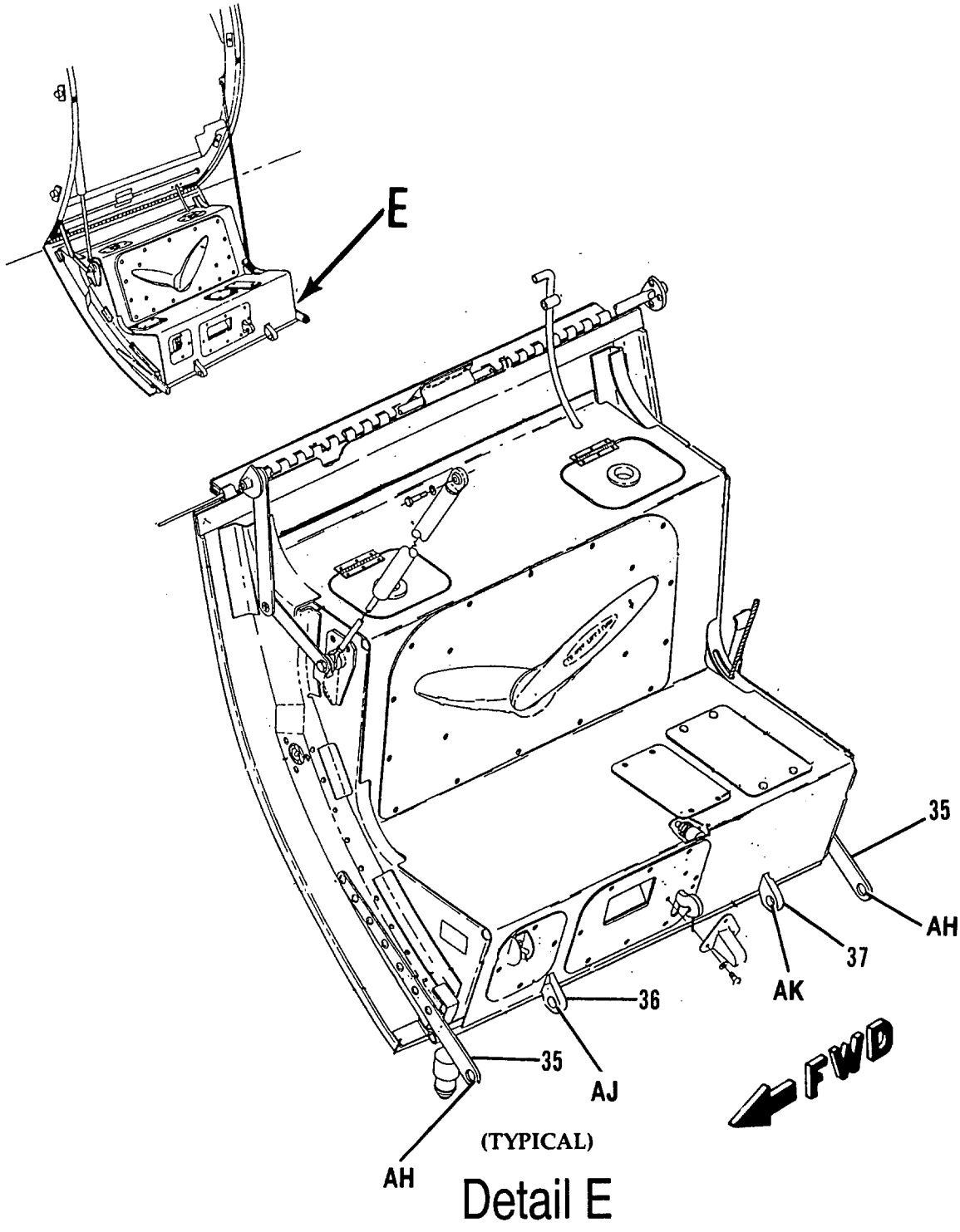
2-16C-1

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 10)



2-8C

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 10)



2-15C-2

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 10)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
1	Plate - 2511298-1	1	A	0.4950	–	+0.0050/ -0.0010	–	–	–
2	Guide Assy., Pin - 2511297-1	1	B	0.4950	–	+0.0050/ -0.0010	–	–	–
3	Pin, Door - 2311299-1	1	A, B	–	0.4850	–	+0.0100/ -0.0000	–	–
			C	0.1880	–	+0.0050/ -0.0000	–	–	–
4	Pin, Clevis - MS20392-2C17	1	C, D	–	0.1860	–	+0.0000/ -0.0020	–	–
5	Turnbuckle - 2511226-3	1	D	0.1890	–	+0.0000/ -0.0000	–	–	–
6	Turnbuckle - MS21242S3	1	E	0.1900	–	+0.0020/ -0.0000	–	–	–
7	Spacer - 2511298-4	1	F	0.6520	–	–	–	–	–
8	Bellcrank, Lower Door - 2411227-2	1	G	0.1890	–	+0.0000/ -0.0000	–	–	–
9	Pan Assy. - 2411221-3, -6	1	K	0.6600	–	+0.0300/ -0.0300	–	–	–
10	Bushing - FF-520-10	1	K	–	0.6200	–	+0.0300/ -0.0300	–	–
			L	0.5030	–	+0.0010/ -0.0000	–	–	–
11	Bushing - 2311340-5	1	M	0.3800	–	+0.0300/ -0.0000	–	–	–
			N	0.1400	–	+0.0100/ -0.0100	–	–	–
12	Pin, Spring - NAS561P4-8 (Alt. NAS561P4-10)	1	N, P	–	0.1310	–	+0.0040/ -0.0000	–	–
13	Shaft, Handle - 2411223-5	1	P	0.1250	–	+0.0050/ -0.0000	–	–	–
			Q	–	0.3700	–	+0.0020/ -0.0000	–	–
			R	0.1900	–	+0.0010/ -0.0000	–	–	–
14	Pin, Clevis - MS20392-2C55	1	R, S	–	0.1880	–	+0.0000/ -0.0020	–	–
15	Bushing - NAS43HT3-16	1	S	0.2140	–	+0.0200/ -0.0200	–	–	–
			T	–	0.3120	–	+0.0100/ -0.0100	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 10)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
16	Handle Assy. - 2411222-1 (Alt. 2411222-2)	1	T	0.3121	–	+0.0005/ -0.0000	–	–	–
17	Block Assy., Bearing, Fwd - 2511317-4	1	U	1.0020	–	+0.0010/ -0.0000	–	–	–
18	Block Assy., Bearing, Aft - 2311317-3	1	V	1.0020	–	+0.0010/ -0.0000	–	–	–
19	Plate, Retaining - 2311309-2	1	W	0.6870	–	+0.0030/ -0.0030	–	–	–
20	Plate - 2311305-41	1	X	0.6900	–	+0.0000/ -0.0000	–	–	–
21	Eccentric, Fwd - 2511306-2	13	W	–	0.6200	–	+0.0100/ -0.0100	–	–
			Y	0.1890	–	+0.0050/ -0.0010	–	–	–
			Z	0.5000	–	+0.0060/ -0.0000	–	–	–
22	Bolt - NAS221-20	1	AA	–	0.1890	–	+0.0000/ -0.0009	–	–
23	Bearing - B1210	1	U	–	–	–	–	–	–
24	Retainer - 2511316-3	1	AB	0.7520	–	+0.0015/ -0.0015	–	–	–
			AC	–	0.1960	–	+0.0050/ -0.0000	–	–
25	Pin, Clevis - MS20392-2C31	1	AC	–	0.1860	–	+0.0000 / -0.0020	–	–
26	Bearing - B1210	1	V	–	–	–	–	–	–
27	Fitting Assy., Torsion Bar - 2511667-2	1	AD	0.2570	–	+0.0050/ -0.0010	–	–	–
28	Bolt - AN4-15A	1	AD	–	0.2490	–	+0.0000/ -0.0030	–	–
29	Bushing - NAS75-4-010	1	AD	0.2500	0.3761	+0.0015/ -0.0005	+0.0000/ -0.0005	–	–
30	Link - 2511268-1	1	AE	0.3160	–	+0.0050/ -0.0000	–	–	–
			AD	0.3770	–	+0.0050/ -0.0000	–	–	–
31	Bushing - NAS75-3-007	1	AE	0.1900	0.3136	–	+0.0000/ -0.0005	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 10)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
32	Screw - 2511269-6 (MS24694-54)	1	AF	–	0.1890	–	+0.0000/ -0.0003	–	–
33	Bar Assy., Torsion - 2511267-1	1	AF	0.1890	–	+0.0000/ -0.0003	–	–	–
			AG	–	0.2180	–	+0.0000/ -0.0030	–	–
34	Bearing Assy., End - 2511269-3	1	AG	0.2210	–	+0.0050/ -0.0000	–	–	–
35	Arm, Door Latch - 2311273-10	1	AH	0.4950	–	+0.0050/ -0.0000	–	–	–
36	Arm, Door Latch, Center Fwd - 2311274-7, -13, -15, -17	1	AJ	0.4950	–	+0.0050/ -0.0000	–	–	–
37	Arm, Door Latch, Center Aft - 2311274-8, -14, -16, -18	1	AK	0.4950	–	+0.0050/ -0.0000	–	–	–

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 10)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Plate - 2511298-17	1	A	Replace worn part.
2	Guide Assy., Pin - 2311297-1	1	B	Replace worn part.
3	Pin, Door - 2311299-1	1	A, B, C	Replace worn part.
4	Pin, Clevis - MS20392-2C17	1	C, D	Replace worn part.
5	Turnbuckle - 2511226-3	1	D	Replace worn part.
6	Turnbuckle - MS21242S3	1	E	Replace worn part.
7	Spacer - 2511226-3	1	F	Replace worn part.
8	Bellcrank, Lower Door - 2411227-2	1	G	Replace worn part.
9	Pan Assy. - 2411221-3, -6	1	K	Replace worn part.
10	Bushing - FF-520-10	1	K, L	Replace worn part.
11	Bushing - 2311340-5	1	M, N	Replace worn part.
12	Pin, Spring - NAS561P4-8 (Alt. NAS561P4-10)	1	N, P	Replace worn part.
13	Shaft, Handle - 2411223-5	1	P, Q, R	Replace worn part.
14	Pin, Clevis - MS20392-2C55	1	R, S	Replace worn part.
15	Bushing - NAS43HT3-16	1	S, T	Replace worn part.
16	Handle Assy. - 2411222-1 (Alt. 2411222-2)	1	T	Replace worn part.
17	Block Assy., Fwd Bearing, - 2511317-4	1	U	Replace worn part.
18	Block Assy., Aft Bearing, - 2311317-3	1	V	Replace worn part.
19	Plate, Retaining - 2311309-2	1	W	Replace worn part.
20	Plate - 2311305-41	1	X	Replace worn part.
21	Eccentric, Fwd - 2311306-2	1	W, X, Y	Replace worn part.
22	Bolt - NAS221-20	1	AA	Replace worn part.
23	Bearing - B1210	1	U	Replace worn part.
24	Retainer - 2511316-3	1	AB, AC	Replace worn part.
25	Pin, Clevis - MS20392-2C31	1	AC	Replace worn part.
26	Bearing - B1210	1	V	Replace worn part.
27	Fitting Assy., Torsion Bar - 2511667-2	1	AD	Replace worn part.
28	Bolt - AN4-15A	1	AD	Replace worn part.
29	Bushing - NAS75-4-010	1	AD	Replace worn part.
30	Link - 2511268-1	1	AD, AE	Replace worn part.
31	Bushing - NAS75-3-007	1	AE	Replace worn part.
32	Screw - 2511269-6 (MS24694-54)	1	AF	Replace worn part.
33	Bar Assy., Torsion - 2511267-1	1	AF, AG	Replace worn part.

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 10)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
34	Bearing Assy., End - 2511269-3	1	AG	Replace worn part.
35	Arm, Door Latch - 2311273-10	1	AH	Replace worn part.
36	Arm, Door Latch, Center Fwd - 2311274-7, -13, -15, -17	1	AJ	Replace worn part.
37	Arm, Door Latch, Center Aft - 2311274-8, -14, -16, -18	1	AK	Replace worn part.

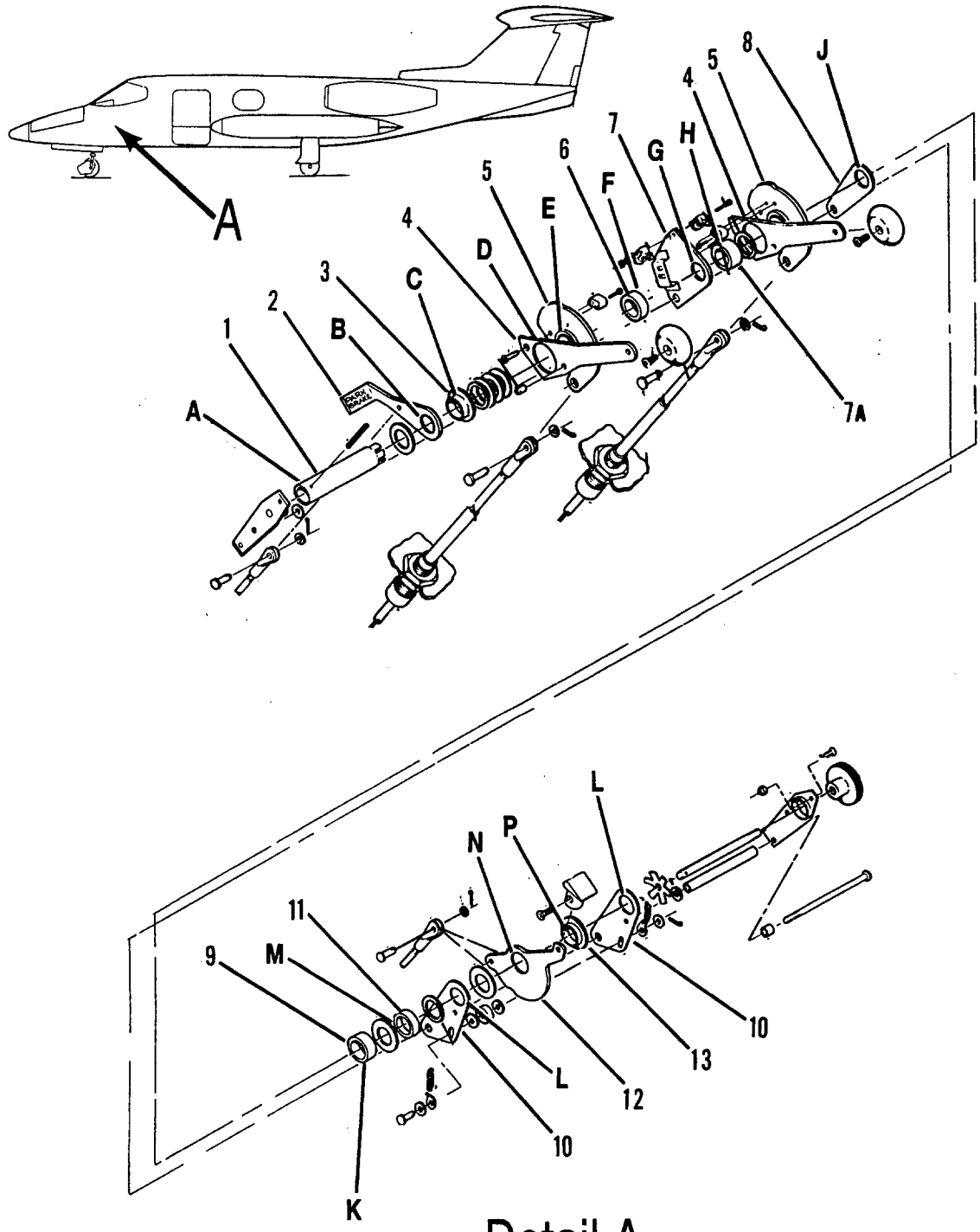
CODES **EFFECTIVITIES**

NOTE: The following effectivities are applicable provided *Aircraft is Equipped with 24-Inch Passenger/Crew Door*.

1 24-272, 24-295 and Subsequent; 25-134, 25-168 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Passenger/Crew Lower Door - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 10)

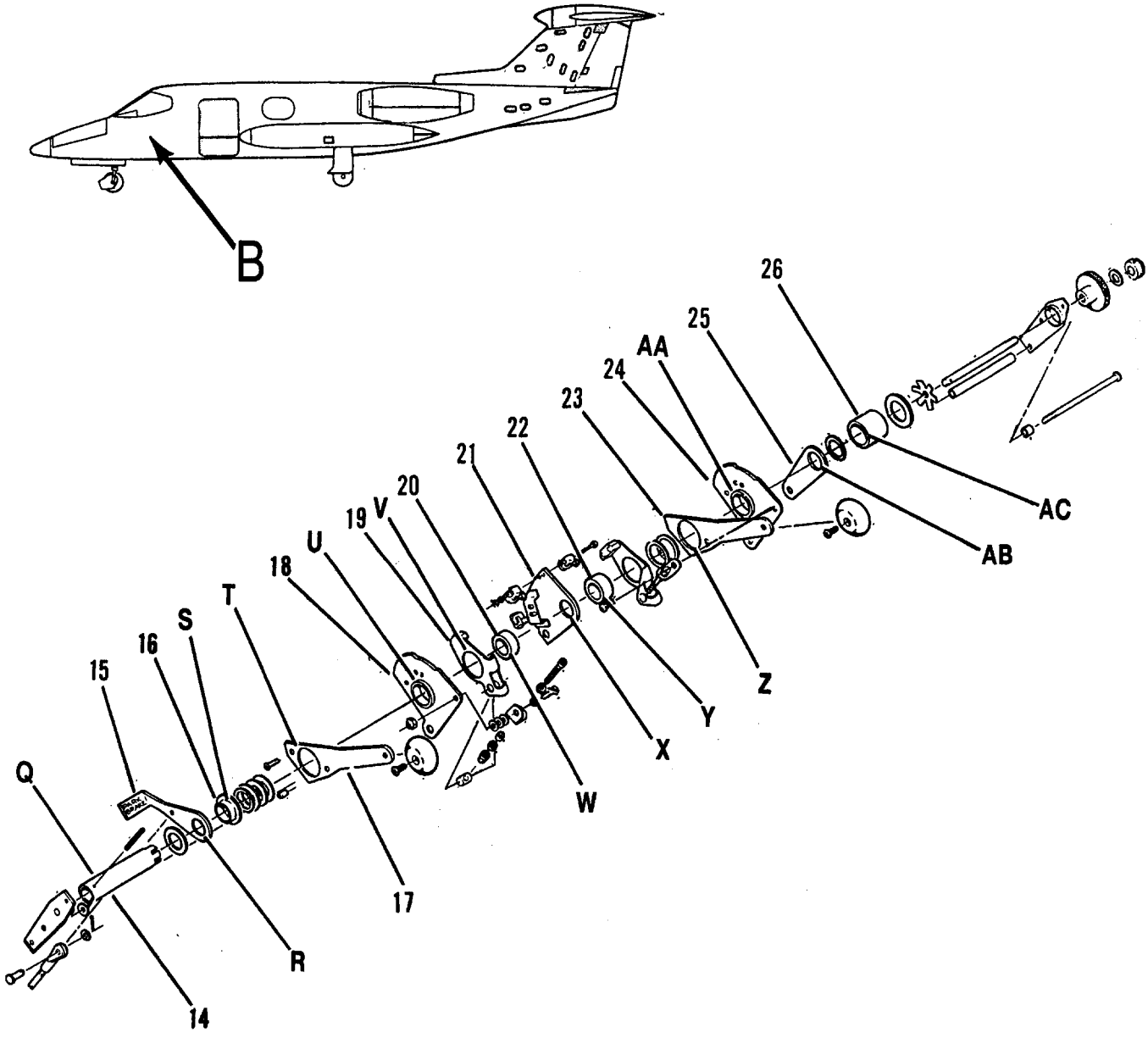
QUADRANT ASSEMBLY - ALLOWABLE WEAR AND REPAIR DATA



2-12C

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 11)

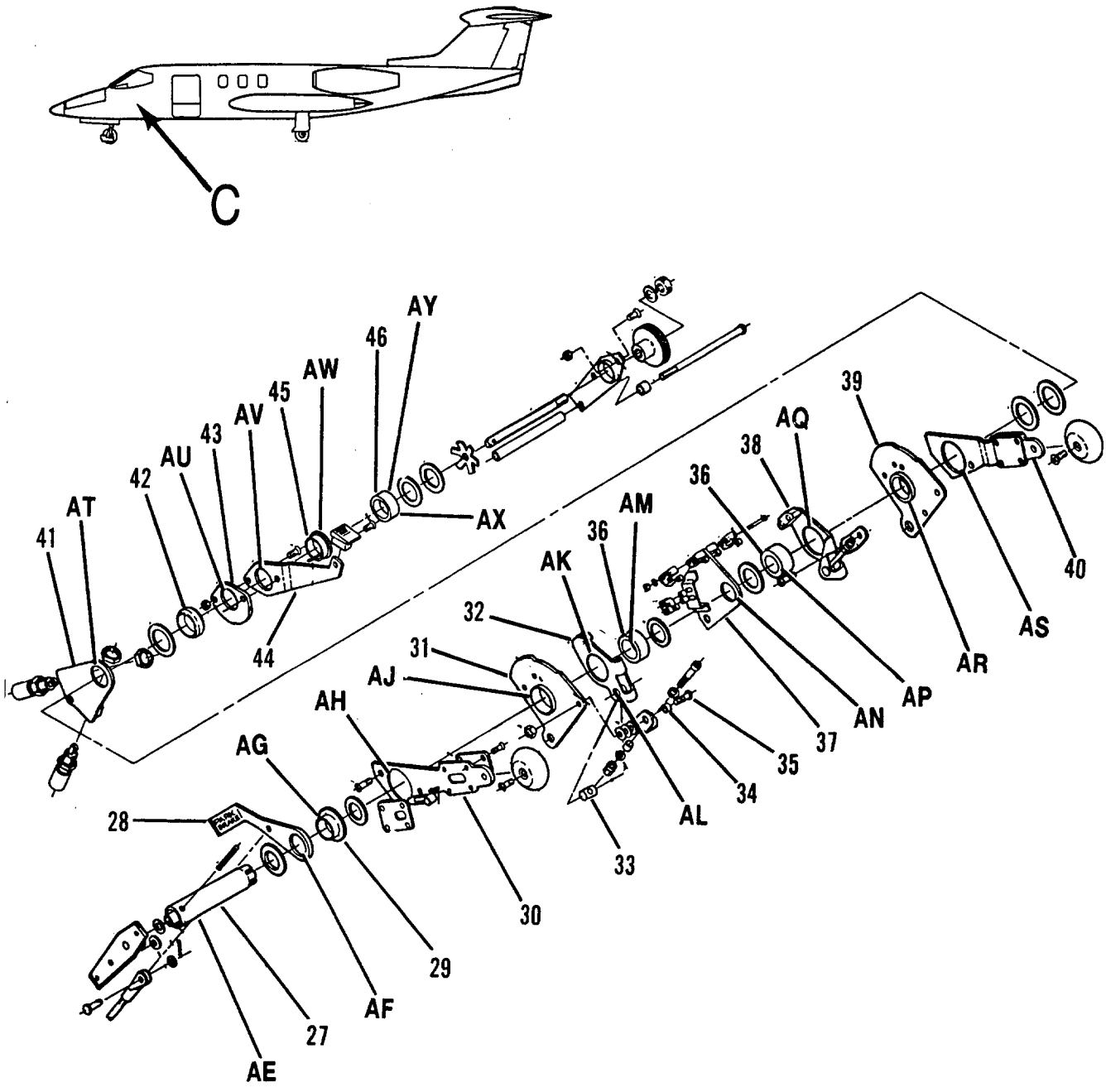
QUADRANT ASSEMBLY - ALLOWABLE WEAR AND REPAIR DATA



Detail B

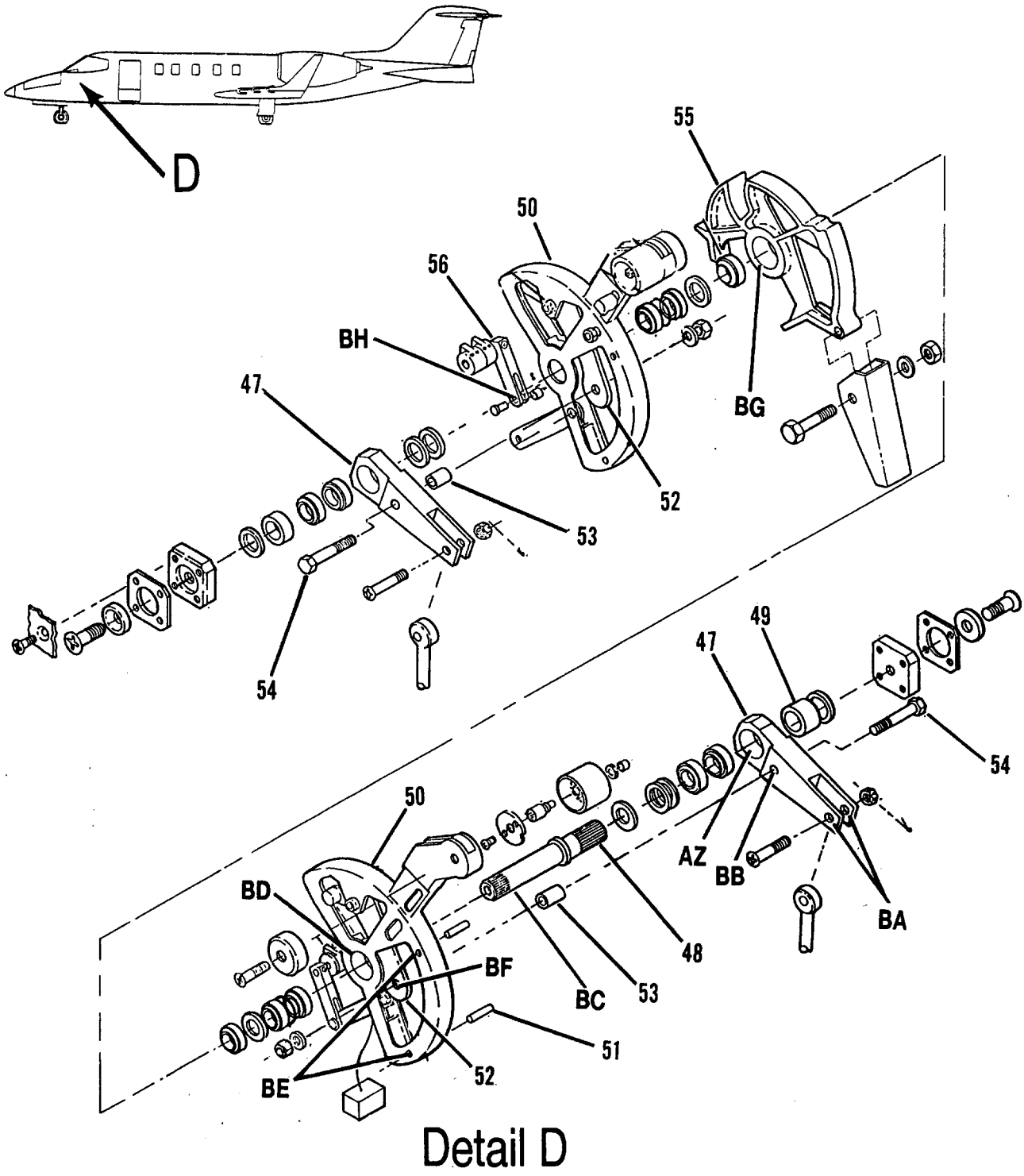
2-12C

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 11)



Detail C

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 11)



Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Tube - 2315131-2	1	A	–	0.7490	–	+0.0000/ -0.0000	–	–
2	Handle-Park, Brake - 231513-80, -180	1	B	0.8750	–	+0.0030/ -0.0000	–	–	–
3	Bushing - 2315131-26	1	B, C	0.7500	0.8740	+0.0030/ -0.0000	+0.0000/ -0.0000	–	–
4	Lever, Throttle - 2315131-12	1	D	1.6200	–	+0.0000/ -0.0000	–	–	–
5	Wheel Assy., Sector - 23151`31-65, -72	1	E	0.9375	–	+0/0005/ -0.0005	–	–	–
	Bushing - NAS76A-12-16	1	E	–	–	–	–	–	–
6	Spacer - 2315131-10	1	E, F	1.0000	0.7500	+0.0000/ -0.0000	+0.0100/ -0.0000	–	–
7	Plate Assy., Lock - 2315131-46, -70	1	G	0.7500	–	+0.0030/ -0.0000	–	–	–
7A	Spacer - 2315131-48	1	G, H	1.0000	0.7500	+0.0000/ -0.0000	+0.0100/ -0.0000	–	–
8	Plate Lock - 2315131-7	1	J	0.7500	–	+0.0010/ -0.0000	–	–	–
9	Spacer - 2315131-41	1	J, K	1.0000	0.7500	+0.0000/ -0.0000	+0.0100/ -0.0000	–	–
10	Plate Lock - 2315131-47	1	J	0.7500	–	+0.0010/ -0.0000	–	–	–
11	Spacer - 2315131-19	1	J, K	1.0000	0.7500	+0.0000/ -0.0000	+0.0100/ -0.0000	–	–
12	Handle, Flap Control - 2315131-74	1	N	0.8750	–	+0.0030 -0.0000	–	–	–
13	Bushing - 2315131-26	1	N, P	0.7500	0.8740	+0.0030/ -0.0000	+0.0000/ -0.0020	–	–
14	Tube - 2315131-2	2	Q	–	0.7490	–	+0.0000/ -0.0020	–	–
15	Handle Assy., Park Brake - 2315131-108, -141	3	R	0.8750	–	+0.0030/ -0.0000	–	–	–
	2415167-1	4	R	0.8750	–	+0.0030/ -0.0000	–	–	–

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
16	Spacer - 2315131-26, -137	2	R, S	0.7500	0.8740	+0.0030/ -0.0000	+0.0000/ -0.0020	–	–
17	Lever, Throttle - 2315131-101	2	T	1.6200	–	+0.0000/ -0.0000	–	–	–
18	Wheel Assy., Sector LH - 2315131-99, -117, -136	2	U	0.7500	–	+0.0000/ -0.0005	–	–	–
19	Cam Assy., LH 2315131-85	2	V	0.7500	–	+0.0030/ -0.0000	–	–	–
20	Spacer - 2315131-88	2	V, W	1.0000	0.7500	+0.0000/ -0.0000	+0.0100/ -0.0000	–	–
21	Plate Assy., Lock - 2315131-70	2	X	0.7500	–	+0.0030/ -0.0000	–	–	–
22	Spacer - 2315131-96	2	X, Y	1.000	0.7500	+0.0000/ -0.0000	-0.0100/ -0.0000	–	–
23	Lever, Throttle - 2315131-101	2	Z	1.6200	–	+0.0000/ -0.0000	–	–	–
24	Wheel Assy., Sector RH - 2315131-100, -116, -135	2	AA	0.7500	–	+0.0000/ -0.0005	–	–	–
25	Plate Lock - 2315131-7	2	AB	0.7500	–	+0.0100/ -0.0000	–	–	–
26	Spacer - 2315131-94	2	AC,	0.7600	1.0000	+0.0050/ -0.0050	–	–	–
27	Tube - 2315131-149	5	AE	–	0.7490	–	+0.0000/ -0.0020	–	–
28	Handle Assy., Park Brake - 2315131-141	6	AF	0.8750	–	+0.0030/ -0.0000	–	–	–
	2415167-1	7	AF	0.8750	–	+0.0030/ -0.0000	–	–	–
29	Spacer - 2315131-137	5	AF, AG	0.7500	0.8740	+0.0030/ -0.0000	+0.0000/ -0.0020	–	–
30	Lever, Throttle LH - 2315164-69	5	AH	1.2500	–	–	–	–	–
31	Wheel Assy., Sector LH - 2315131-145	5	AJ	0.7510	–	+0.0005/ -0.0005	–	–	–

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
32	Cam Assy., LH - 2315131-85	5	AK	0.7500	–	+0.0030 -0.0000	–	–	–
			AL	0.3160	–	+0.0030/ -0.0000	–	–	–
33	Trunnion - 2315131-91	5	AL	–	0.3150	–	+0.0000/ -0.0030	–	–
34	Spacer - 2315131-90	5	AL	0.3150	–	+0.0000/ -0.0030	–	–	–
35	Screw - NAS220-6	5	AL	–	0.1640	–	–	–	–
36	Spacer - 2515164-51	5	AK, AM, AP, AQ	0.7500	1.0000	+0.0100/ -0.0000	–	–	–
37	Plate Assy., Lock - 2315131-70	2	AN	0.7500	–	+0.0030/ -0.0000	–	–	–
38	Spacer - 2513164-51	5	AP, AQ	0.7500	1.0000	+0.0100/ -0.0000	–	–	–
39	Wheel Assy., Sector - 2315131-146	5	AR	0.7510	–	+0.0005/ -0.0005	–	–	–
40	Lever, Throttle RH - 2515164-70	5	AS	1.2500	–	–	–	–	–
41	Lock Plate Assy., Flap Switch - 2514164-75	5	AT	0.7500	–	+0.0100/ -0.0000	–	–	–
42	Spacer - 2515164-78	5	AT	0.7500	–	+0.0100/ -0.0000	–	–	–
43	Flap Cam - 2515164-76	5	AU	0.8750	–	+0.0030/ -0.0000	–	–	–
44	Lever, Flap - 2515164-74	5	AV	0.8750	–	+0.0030/ -0.0000	–	–	–
45	Bushing, Flap Lever - 2515164-49	5	AV,	0.7500	0.8740	+0.0030/ -0.0000	+0.0000/ -0.00020	–	–
46	Spacer - 2315131-10	5	AX,	1.0000	0.7500	+0.0000/ -0.0000	+0.0010/ -0.0000	–	–

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 7 of 11)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
47	Link Assy, Output - 2615260-3, -6	8	AZ	1.0623	–	+0.0002/ -0.0003	–	–	–
			BA	0.1920	–	+0.0020 -0.0020	–	–	–
			BB	0.2520	–	+0.0020 -0.0020	–	–	–
48	Shaft, Quadrant - 2615137-3	8	BC	–	0.6243	–	+0.0002/ -0.0003	–	–
49	Spacer - 2615172-19	8	BC	0.6300	0.8120	+0.0050 -0.0050	+0.0100 -0.0100	–	–
50	Lever, Thrust Reverser - 2615242-14	8	BD	0.9290	–	+0.0050 -0.0050	–	–	–
			BE	0.0630	–	+0.0020/ -0.0010	–	–	–
51	Roll Pin - MS16562-8	8	BE	–	0.0680	–	+0.0010/ -0.0020	–	–
52	Output Link Stop - 2615266-1, -2	9	BF	0.2530	–	+0.0010/ -0.0020	–	–	–
	Tie Strap - 2615290-1	10	BF	0.2530	–	+0.0010/ -0.0020	–	–	–
53	Spacer - NAS43DD4-29	8	–	0.2750	0.3750	+0.0220/ -0.0190	+0.0100 -0.0100	–	–
54	Bolt - NAS1104-16	8	BF	–	0.2485	–	+0.0002/ -0.0004	–	–
55	Idle Stop Assy. - 2615203-7, -9, -10, -11, -13	8	BG	0.7500	–	+0.0100/ -0.0100	–	–	–
56	Lever, Ignition Switch - 2615255-2, -7	8	BH	0.3180	–	+0.0020 -0.0020	–	–	–
57	Pin - MS20392-2C11	8	BH	–	0.3110	–	+0.0000/ -0.0020	–	–

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 8 of 11)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Tube - 2315131-2	1	A	Replace worn part.
2	Handle-Park, Brake - 2315131-80, -180	1	B	Replace worn part.
3	Bushing - 2315131-26	1	B, C	Replace worn part.
4	Lever, Throttle - 2315131-12	1	D	Replace worn part.
5	Wheel Assy., Sector Bushing - NAS76A-12-16	1	E	Replace worn part.
6	Spacer - 2315131-10	1	E, F	Replace worn part.
7	Plate Assy., Lock - 2315131-46, -70	1	G	Replace worn part.
7A	Spacer - 2315131-48	1	G, H	Replace worn part.
8	Plate Lock - 2315131-7	1	J	Replace worn part.
9	Spacer - 2315131-41	1	J, K	Replace worn part.
10	Plate Lock - 2315131-47	1	L	Replace worn part.
11	Spacer - 2315131-19	1	L, M	Replace worn part.
12	Handle, Flap Control - 2315131-74	1	N	Replace worn part.
13	Bushing - 2315131-26	1	N, P	Replace worn part.
14	Tube - 2315131-2	2	Q	Replace worn part.
15	Handle Assy., Park Brake - 2315131-108, -141	3	R	Replace worn part.
	2415167-1	4	R	Replace worn part.
16	Spacer - 2315131-126, -137	2	R, S	Replace worn part.
17	Lever, Throttle - 2315131-101	2	T	Repalce worn part.
18	Wheel Assy., Sector LH - 2315131-99, -117, -136	2	U	Replace worn part.
19	Cam Assy., LH - 2315131-85	2	V	Replace worn part.
20	Spacer - 2315131-88	2	V, W	Repalce worn part.
21	Plate Assy., Lock - 2315131-70	2	X	Replace worn part.
22	Spacer - 2315131-96	2	X, Y	Replace worn part.
23	Lever, Throttle - 2315101-101	2	Z	Replace worn part.
24	Wheel Assy., Sector RH - 2315131-100, -116, -135	2	AA	Replace worn part.
25	Plate, Lock - 2315131-7	2	AB	Replace worn part.
26	Spacer - 2315131-94	2	AC, AD	Replace worn part.
27	Tube - 2315131-149	5	AE	Replace worn part.
28	Handle Assy., Park Brake - 2315131-141	6	AF	Replace worn part.
	2415167-1	7	AF	Replace worn part.
29	Spacer - 2315131-137	5	AF, AG	Replace worn part.
30	Lever, Throttle LH - 2515164-69	5	AH	Replace worn part.
31	Wheel Assy., Sector LH - 2315131-145	5	AJ	Replace worn part.
32	Cam Assy., LH - 2315131-85	5	AK, AL	Replace worn part.
33	Trunnion - 2315131-91	5	AL	Replace worn part.

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 9 of 11)

REPAIR DATA

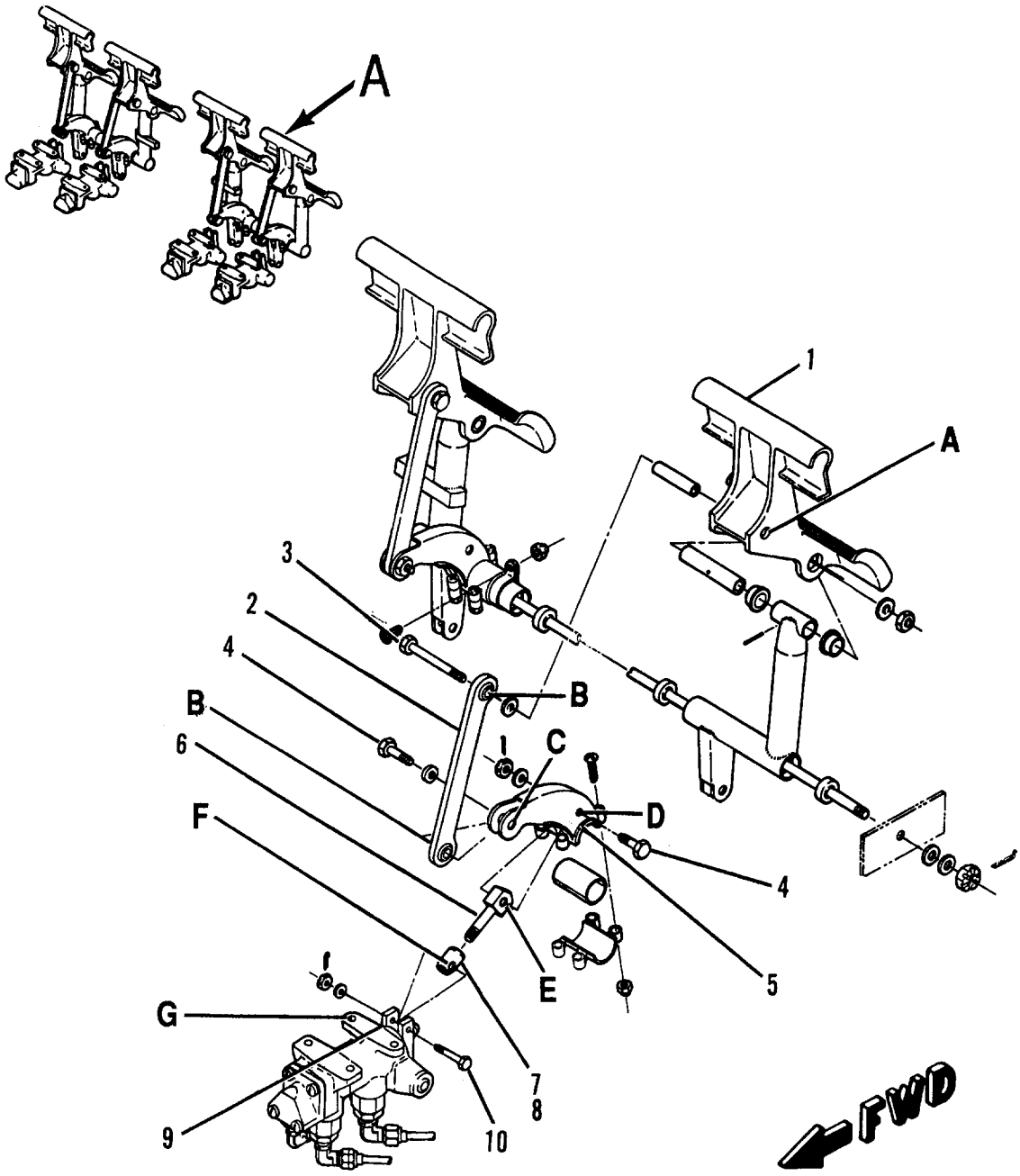
ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
34	Spacer - 2315131-90	5	AL	Replace worn part.
35	Screw - NAS220-6	5	AL	Replace worn part.
36	Spacer - 2515164-51	5	AK, AM	Replace worn part.
37	Plate Assy., Lock - 2315131-70	2	AN	Replace worn part.
38	Spacer - 2515164-51	5	AP, AQ	Replace worn part.
39	Wheel Assy., Sector - 2315131-146	5	AR	Replace worn part.
40	Lever, Throttle RH - 2315164-70	5	AS	Replace worn part.
41	Lock Plate Assy., Flap Switch - 2515164-75	5	AT	Replace worn part.
42	Spacer - 2515164-78	5	AT	Replace worn part.
43	Flap Cam - 2515164-76	5	AU	Replace worn part.
44	Lever, Flap - 2515164-74	%	AV	Replace worn part.
45	Bushing, Flap Lever - 2515164-49	5	AV, AW	Replace worn part.
46	Spacer - 2315131-10	5	AX, AY	Replace worn part.
47	Link Assy., Output - 2615260-3, -6	8	AZ, BA, BB	Replace worn part.
48	Shaft, Quadrant - 2615137-3	8	BC	Replace worn part.
49	Spacer - 2615172-19	8	BC	Replace worn part.
50	Lever, Thrust Reverser - 2615242-14	8	BD, BE	Replace worn part.
51	Roll Pin - MS16562-8	8	BE	Replace worn part.
52	Output Link Stop - 2615266-1, -2	9	BF	Replace worn part.
	Tie Strap - 2615290-1	10	BF	Replace worn part.
53	Spacer - NAS43DD4-29	8	–	Replace worn part.
54	Bolt - NAS1104-16	8	BG	Replace worn part.
55	Idle Stop Assy. - 2615203-7, -9, -10, -11, -13	8	BG	Replace worn part.
56	Lever, Ignition Switch - 2615255-2, -7	8	BH	Replace worn part.
57	Pin - MS20392-2C11	8	BH	Replace worn part.

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 10 of 11)

CODES	EFFECTIVITIES
1	23-001 thru 23-010, 23-013, 23-014, 23-016 thru 23-018, and 23-020 thru 23-029
2	23-011, 23-015, 23-019, 23-030 and Subsequent; 24-100 and Subsequent, Except Aircraft With Thrust Reversers Installed; 25-001 and Subsequent Except United Kingdom Certified Aircraft and Except Aircraft With Thrust Reversers Installed; 28-001 and Subsequent; 29-001 and Subsequent
3	23-011, 23-015, 23-019, 23-030 and Subsequent; 24-100 thru 24-357 Except Aircraft With Thrust Reversers Installed; 25-001 thru 25-277 Except United Kingdom Certified Aircraft and Except Aircraft With Thrust Reversers Installed; 28-001 thru 28-005; 29-001 thru 29-002
4	24-358 and Subsequent; 25-278 and Subsequent; 28-006 and Subsequent; 29-003 and Subsequent
5	25-135 and Subsequent When Certified for United Kingdom
6	25-135 thru 25-277 When Certified For United Kingdom
7	25-277 and Subsequent When Certified for United Kingdom
8	31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Quadrant Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 11 of 11)

MLG POWER BRAKE VALVE LINKAGE - ALLOWABLE WEAR AND REPAIR DATA



(TYPICAL)

Detail A

8-69C
8-70C

MLG Power Brake Valve Linkage - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Pedal Assy., Rudder - 2315141-24, -33	2	A	0.3750	–	+0.0030/ -0.0010	–	–	–
	2384010-2, -6	3	A	0.3750	–	+0.0030/ -0.0010	–	–	–
	2415171-1	4	A	0.3750	–	+0.0030/ -0.0010	–	–	–
	2415171-9	5	A	0.3750	–	+0.0030/ -0.0010	–	–	–
	2415175-1	6	A	0.3750	–	+0.0030/ -0.0010	–	–	–
2	Link Assy. - 2315167-22 (Alt. 2315167-29)	1	B	0.6557	–	+0.0020/ -0.0000	–	–	–
3	Bolt - NAS464P4-39, -40	1	A, B	–	0.2492	–	+0.0000/ -0.0009	–	–
4	Bolt - NAS464P4-9	1	B, C, D, E	–	0.2492	–	+0.0000/ -0.0009	–	–
5	Arm Assy., Brake - 2315166-19 Alt. 2315166-15	1	C	0.2500	–	+0.0050/ -0.0010	–	–	–
6	Link - 2315167-27	1	E	0.3120	–	+0.0010/ -0.0010	–	–	–
7	Nut Assy. - 2315167-16	1	F	0.3140	–	+0.0010/ -0.0000	–	–	–
8	Bushing - NAS75-3-004	1	F	0.1900	0.3136	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
9	Lever - 2315167-3, -28	1	G	0.1910	–	+0.0050/ -0.0010	–	–	–
	(Alt. 2315167-25)		G	0.1910	–	+0.0050/ -0.0010	–	–	–
10	Bolt - NAS464P3-16	1	F, G	–	0.1894	–	+0.0000/ -0.0009	–	–

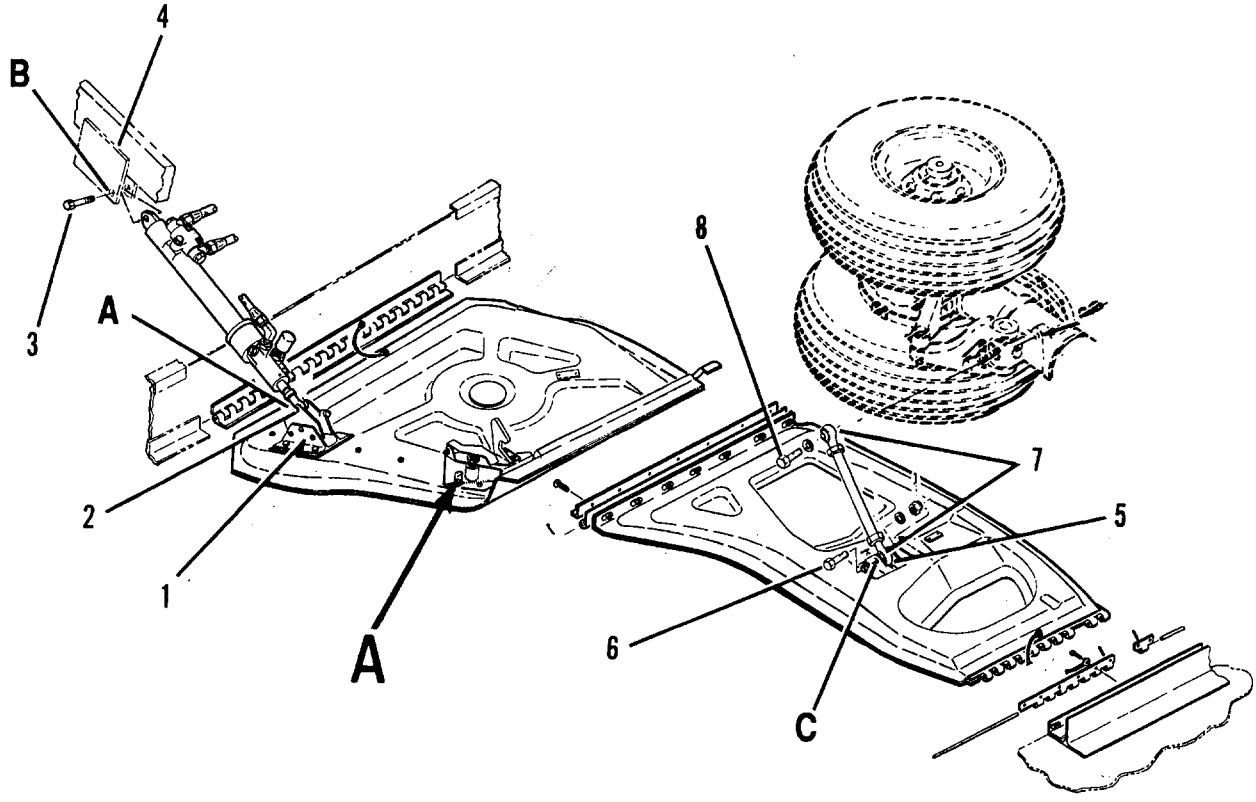
MLG Power Brake Valve Linkage - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Pedal Assy., Rudder - 2315141-24 -33	2	A	Replace worn part.
	Pedal Assy., Rudder - 2484010-2, -6	3	A	Replace worn part.
	Pedal Assy., Rudder - 2415171-1	4	A	Replace worn part.
	Pedal Assy., Rudder - 2315171-9	5	A	Replace worn part.
	Pedal Assy., Rudder - 2415175-1	6	A	Replace worn part.
2	Link Assy. - 2315167-22 Alt. 2315167-29	1	B	Replace worn part.
3	Bolt - NAS464P4-39, -40	1	A, B	Replace worn part.
4	Bolt - NAS464P4-9	1	B, C, D, E	Replace worn part.
5	Arm Assy., Brake - 2315166-19	1	C, D	Replace worn part.
	(Alt. 2315166-15)		C, D	Replace worn part.
6	Link - 2315167-27	1	E	Replace worn part.
7	Nut Assy. - 2315167-16	1	F	Replace worn part.
8	Bushing - NAS75-3-004	1	F	Replace worn part.
9	Lever - 2315167-3, -28	1	G	Replace worn part.
	(Alt. 2315167-25)		G	Replace worn part.
10	Bolt - NAS464P3-16	1	F, G	Replace worn part.

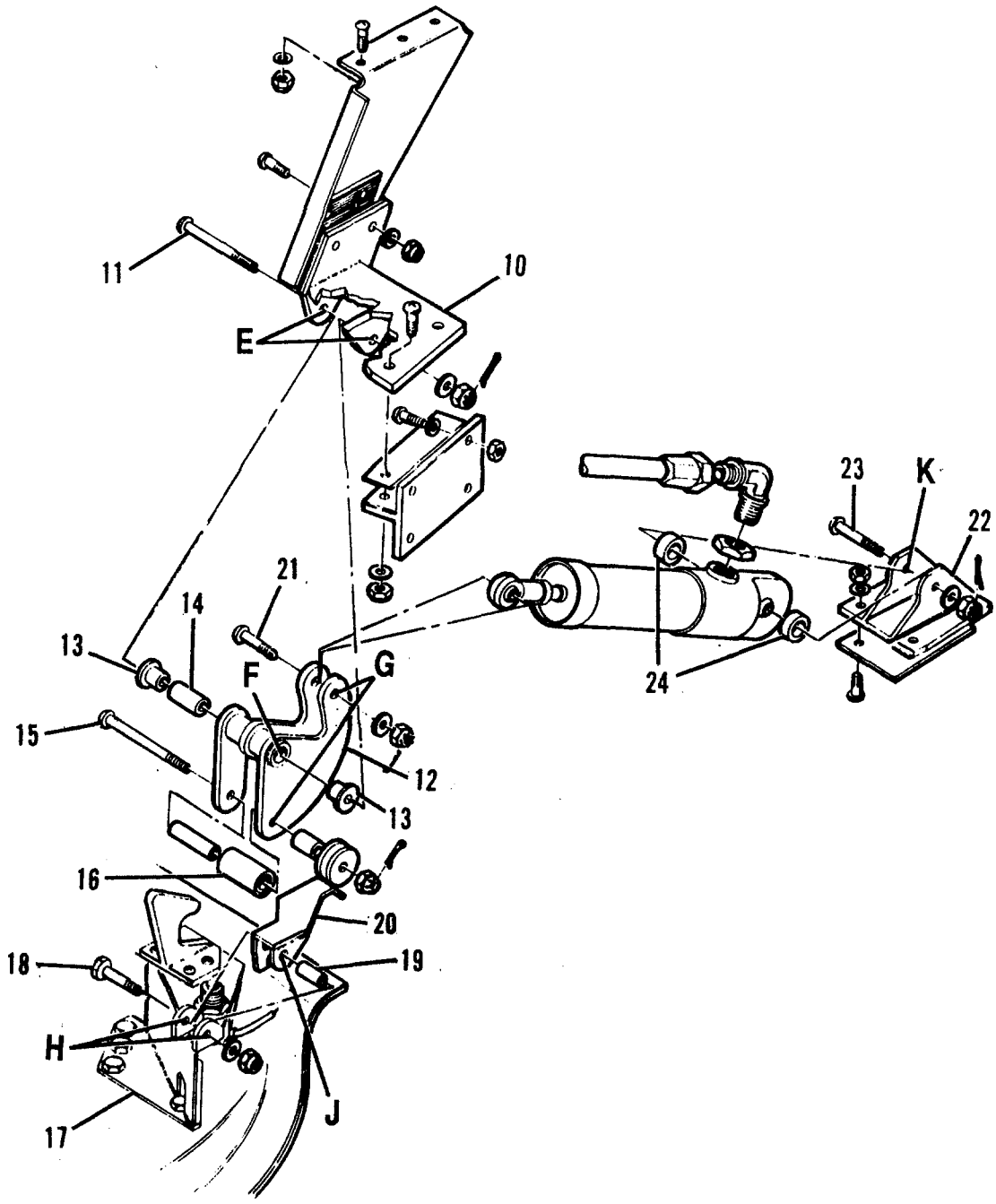
CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 and Subsequent Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 24-100 thru 24-357 Except When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement" or AMK 81-03, "Rudder Pedal Heel Support Replacement"; 25-001 thru 25-302; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 thru 35-299; 36-001 thru 36-045
3	23-001 and Subsequent When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 24-100 thru 24-139 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"
4	24-358 and Subsequent and Prior Aircraft Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 25-303 thru 25-338 and Prior Aircraft Modified AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 35-300 thru 35-400; 36-046 and 36-047
5	23-001 and Subsequent When Modified by AMK 81-03, "Rudder Pedal Heel Support Replacement"; 24-100 thru 24-357 When Modified by AMK 81-03, "Rudder Pedal Heel Support Replacement"; 25-001 thru 25-357 When Modified by AMK 81-03, "Rudder Pedal Heel Support Replacement"; 35-401 thru 35-617; 35-621 thru 35-624; 36-048 thru 36-055
6	23-001 and Subsequent When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 24-140 thru 24-357 When Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 25-339 and Subsequent and Prior Aircraft Modified by AMK 81-02, "Rudder Pedal Rework and Heelplate Replacement"; 31-001 and Subsequent; 35-618 thru 35-620, 35-625 and Subsequent; 36-056 and Subsequent

MLG Power Brake Valve Linkage - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)



14-90C-2
A6-3C-1
A6-6C

Main Gear Door and Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 6)



Detail A

Main Gear Door and Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 6)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Plate, Adjustable - 2327021-3	1	A	0.2500	–	+0.0050/ -0.0010	–	–	–
2	Bolt - NAS464P4-14	1	A	–	0.2492	–	+0.0000/ -0.0005	–	–
3	Bolt - AN174HC12A	1	B	–	0.2492	–	+0.0000/ -0.0010	–	–
4	Actuator Support Plate - 2311623-27, -28	1	B	0.2495	–	+0.0010/ -0.0000	–	–	–
5	Fitting - 2322522-1	1	C	0.2505	–	+0.0000/ -0.0010	–	–	–
6	Bolt - AN174-12A	1	C	–	0.2492	–	+0.0000/ -0.0005	–	–
7	Rod End - DREM-4-050	1	C	–	–	–	–	–	–
	(Alt. ARYHT4E)		C	–	–	–	–	–	–
8	Bolt - NAS464P4-23, A23 A22	1	D	–	0.2492	–	+0.0000/ -0.0009	–	–
9	Deleted								
10	Bracket Assy. - 2348042-1, -2	1	E	0.2500	–	+0.0050/ -0.0010	–	–	–
11	Bolt - AN24-36	1	E	–	0.2480	–	+0.0000/ -0.0020	–	–
12	Bracket Assy. - 2348041-1, -2	1	F	0.4380	–	±0.0010/	–	–	–
			G	0.2500	–	±0.0100	–	–	–
13	Bushing - 6L6-F	1	F	–	–	–	–	–	–
14	Bushing - NAS75-4-122	1	F	0.2500	0.3761	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
15	Bolt - AN24-36	1	G	–	0.2480	–	+0.0000/ -0.0020	–	–
16	Roller - 2317060-6	1	–	0.4445	0.5620	+0.0000/ -0.0010	±0.0100/	–	–
	Spacer - 2317065-4	1	–	0.2970	0.3750	+0.0000/ -0.0410	+0.0000/ -0.0100	–	–
	Bushing - 6L8-D	1	–	–	–	–	–	–	–
17	Bracket Assy. - 2311630-11, -12 (Alt. 2311630-13, -14) (Alt. 2311630-17, -18) (Alt. 2311630-23, -24)	1	H	0.1890	–	+0.0050/ -0.0010	–	–	–

Main Gear Door and Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 6)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
18	Bolt - AN23-19	1	H, J	–	0.1860	–	+0.0000/ -0.0020	–	–
19	Bushing - 2311628-7	1	H, J	0.1930	0.2500	+0.0050/ -0.0010	±0.0100	–	–
20	Lever - 2311628-1, -2, -9 -10, -001, -002	1	J	0.2570	–	+0.0050/ -0.0010	–	–	–
21	Bolt - AN24-17	1	G	–	0.2480	–	+0.0000/ -0.0020	–	–
22	Support, Actuator - 2348044-1, -2	1	K	0.3750	–	+0.0060/ -0.0012	–	–	–
23	Bolt - AN26-21	1	K	0.3730	–	+0.0000/ -0.0020	–	–	–
24	Spacer - NAS43HT6-13	1	–	0.4270	0.5150	+0.0000/ *-0.0400*	+0.0000/ *-0.0300*	–	–

Main Gear Door and Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 6)

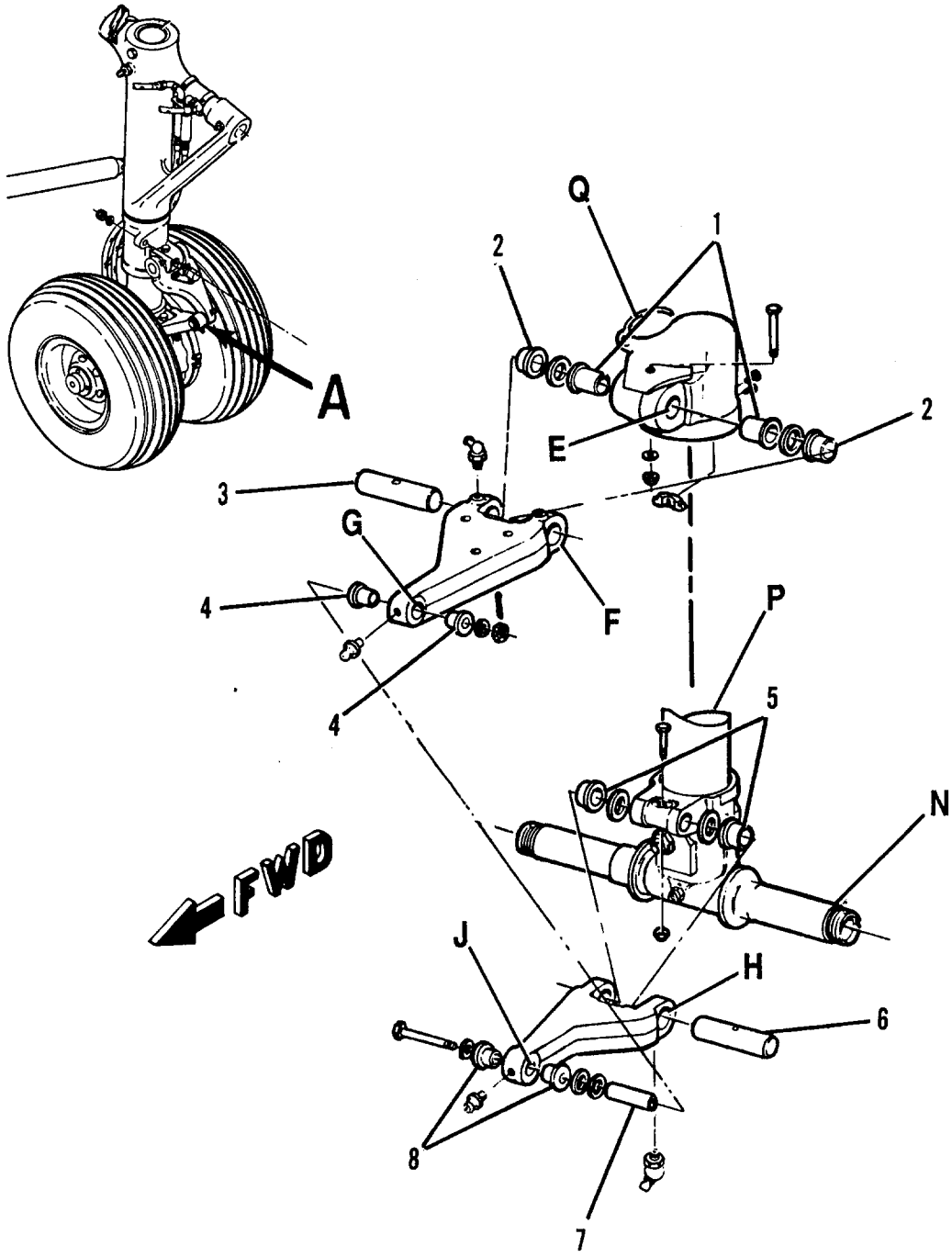
REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Plate, Adjustable - 2327021-3	1	A	Replace worn part.
2	Bolt - NAS464P4-14	1	A	Replace worn part.
3	Bolt - AN174HC12A	1	B	Replace worn part.
4	Actuator Support Plate - 2311623-27, -28	1	B	Replace worn part.
5	*Fitting - 2322522-1*	1	C	*Replace worn part.*
6	Bolt - AN174-12A	1	C	Replace worn part.
7	Rod End - DREM-4-050	1	C	Replace worn part.
	(Alt. ARYHT4E)		C	Replace worn part.
8	Bolt - NAS464P4-A22, -23, -A23	1	D	Replace worn part.
9	Deleted			
10	Bracket Assy. - 2348042-1, -2	1	E	Replace worn part.
11	Bolt - AN24-36	1	E	Replace worn part.
12	Bracket Assy. - 2348041-1, -1	1	F, G	Replace worn part.
13	Bushing - 6L6-F	1	F	Replace worn part.
14	Bushing - NAS75-4-122	1	F	Replace worn part.
15	Bolt - AN24-36	1	G	Replace worn part.
16	Roller - 2317060-6	1	–	Replace worn part.
	Spacer - 2317065-4	1	–	Replace worn part.
	Bushing - 6L8-D	1	–	Replace worn part.
17	Bracket Assy - 2311630-11, -12	1	H	Replace worn part.
	(Alt. 2311630-13, -14)		H	Replace worn part.
	(Alt. 2311630-17, -18)		H	Replace worn part.
	(Alt. 2311630-23, -24)		H	Replace worn part.
18	Bolt - AN23-19	1	H, J	Replace worn part.
19	Bushing - 2311628-7	1	H, J	Replace worn part.
20	Lever - 2311628-1, -2, -9, -10, -001, -002	1	J	Replace worn part.
21	Bolt - AN24-17	1	G	Replace worn part.
22	Support, Actuator - 2348044-1, -2	1	K	Replace worn part
23	Bolt - NAS464P6-16	1	K	Replace worn part.
24	Spacer - NAS54HT6-13	1	–	Replace worn part.

Main Gear Door and Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 6)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099 When Equipped With Goodrich Brakes
3	23-011 thru 23-099 When Equipped With Goodyear Brakes
4	24-330 thru 24-340 Except Aircraft Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"; 25-206 thru 25-213 Except Aircraft Modified by AAK 78-03A,"Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"; 35-067 thru 35-091 Except Aircraft Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"; 36-018 thru 36-023 Except Aircraft Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"
5	24-100 thru 24-329, 24-341 and Subsequent and 24-330 thru 24-340 When Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"; 25-001 thru 25-205, 25-214 and Subsequent and 25-206 thru 25-213 When Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-121, 31-135 and Subsequent; 35-001 thru 35-066, 35-092 and Subsequent and 35-067 thru 35-091 When Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"; 36-001 thru 36-017, 36-024 and Subsequent and 36-018 thru 36-023 When Modified by AAK 78-03A, "Replacement of Main Landing Gear Strut Piston Assembly for Improved Snubbing"
6	31-122 thru 31-134

Main Gear Door and Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 6 of 6)



Detail A

Main Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Torque Arm Bushing - 2341126-1	2	E	0.7200	0.9383	+0.0050/ -0.0000	+0.0010/ -0.0000	–	–
	2341126-2	3	E	0.7505	0.9383	+0.0010/ -0.0000	+0.0010/ -0.0000	0.7525	–
2	Torque Arm Bushing - 2341120-1	4	F	0.7200	0.8765	+0.0050/ -0.0000	±0.0005	–	–
	Torque Arm Bushing - 2341120-2	5	F	0.7200	0.9078	+0.0050/ -0.0000	±0.0003	–	–
3	Upper Torque Arm Pin - 2341118-1	4	F	–	0.7500	–	+0.0000/ -0.0005	–	0.7440
	3141118-1	5	F	–	0.7500	–	+0.0000/ -0.0005	–	–
4	Torque Arm Bushing - 2341127-1, -3, -4	1	G	0.5320	0.6892	+0.0050/ -0.0000	+0.0000/ -0.0005	–	–
5	Torque Arm Bushing - 2341120-1	6	H	0.7200	0.8765	+0.0050/ -0.0000	±0.0005	–	–
	2341120-2	7	H	0.7200	0.9078	+0.0050/ -0.0000	±0.0003	–	–
6	Lower Torque Arm Pin - 2341118-1	6	H	–	0.7500	–	+0.0000/ -0.0005	–	0.7440
	3141118-1	7	H	–	0.7500	–	+0.0000/ -0.0005	–	–
7	Torque Arm Apex Pin - 2341128-1	1	J	0.3750	0.5620	+0.0100/ -0.0000	+0.0000/ -0.0005	–	0.5580
8	Torque Arm Bushing - 2341127-1	4	J	0.5320	0.6892	+0.0050/ -0.0000	+0.0000/ -0.0005	0.5660	–
	2341127-2	5	J	0.5320	0.7045	+0.0050/ -0.0000	+0.0000/ -0.0005	0.5660	–

Main Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
9	Strut Assy.								
	Fwd Trunnion Pin Hole	1	K	1.2608	–	+0.0000/ -0.0010	–	1.2620	–
	Aft Trunnion Pin Hole in Strut (Finish 125 RMS)	1	L	1.1260	–	+0.0000/ -0.0010	–	1.1280	–
	Lower Bearing (Finish 125 RMS)	1	M	3.0020	–	+0.0000/ -0.0020	–	3.0080	–
10	Axle (Outer Ends) (Finish 32 RMS)	1	N	–	1.4998	– –	+0.0000/ -0.0010	–	1.4970
11	Piston Head (Finish 32 RMS)	1	P	–	3.2480	– –	+0.0000/ -0.0040	–	3.2400
12	Piston Cylinder (Finish 16 RMS)	1	Q	–	2.9980	– –	+0.000/ -0.0020	–	2.9945
13	Cylinder (Finish 63 RMS)	1	Q	3.2520	–	+0.0000/ -0.0020	–	3.2560	–

Main Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 5)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Torque Arm Bushing -			
	2341126-1	2	E	Replace worn part.
	2341126-2	3	E	Replace worn part.
2	Torque Arm Bushing - 2341120-1	4	F	Replace worn part.
	Torque Arm Bushing - 2341120-2	5	F	Replace worn part.
3	Upper Torque Arm Pin - 2341118-1	4	F	Replace worn part.
	3141118-1	5	F	Replace worn part.
4	Torque Arm Bushing -			
	2341127-1	1	G	Replace worn part. 2
5	Torque Arm Bushing -			
	2341120-1	6	H	Replace worn part. 1
	2341120-2	7	H	Replace worn part. 1
6	Lower Torque Arm Pin -			
	2341118-1	6	H	Replace worn part.
	3141118-1	7	H	Replace worn part.
7	Torque Arm Apex Pin -			
	2341128-1	1	J	Replace worn part.
8	Torque Arm Bushing -			
	2341127-1	4	J	Replace worn part. 2
	2341127-2	5	J	Replace worn part. 2
9	Strut Assy.			
	Fwd Trunnion Pin Hole	1	K	Replace worn part.
	Aft Trunnion Pin (Finish 125 RMS)	1	L	Replace worn part.
	Lower Bearing	1	M	Replace worn part.
10	Axle (Outer Ends)	1	N	Replace worn part.
11	Piston Head	1	P	Replace worn part.
12	Piston Cylinder	1	Q	Replace worn part.
13	Cylinder (Finish 63 RMS)	1	Q	Replace worn part.

Main Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 thru 31-003; 35-001 thru 35-642; 36-001 thru 36-057
3	31-004 and Subsequent; 35-643 and Subsequent; 36-058 and Subsequent and Prior Aircraft Equipped With 2341126-2 Bushing
4	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
5	31-001 and Subsequent
6	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-001 thru 35-629; 36-001 thru 36-058
7	31-001 and Subsequent; 35-630 and Subsequent; 36-059 and Subsequent

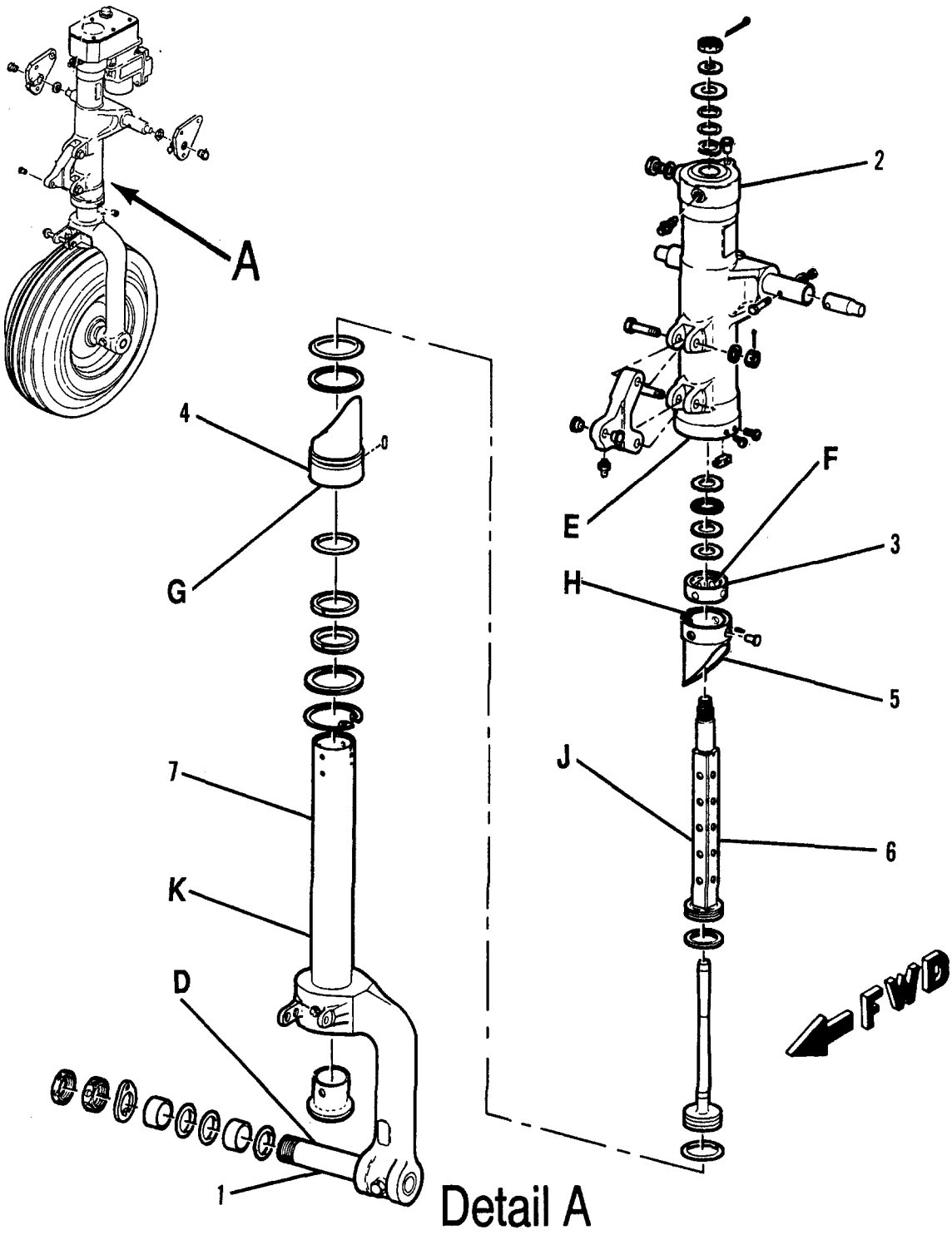
NOTES:

1. Line ream bushings to 0.7505 (+0.0005/-0.0000) after installation.

2. Line ream bushings to 0.5625 (+0.0005/-0.0000) after installation. (Finish 32 RMS)

Main Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 5)

NOSE GEAR SHOCK STRUT - ALLOWABLE WEAR AND REPAIR DATA



A6-20C

Nose Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Axle - 2342117-1	1	D	–	1.4998	–	+0.0000/ -0.0010	–	1.4980
2	Cylinder - 2342102-1	1	E	3.0000	–	+0.0020/ -0.0000	–	3.0060	–
	2342100-2042-1 thru -12	2	E	3.0000	–	+0.0020/ -0.0000	–	3.0060	–
3	Torque Block - 2342101-1	1	F	1.2200	–	+0.0010/ -0.0000	–	1.2230	–
4	Cam Follower - 2342106-1 2342106-3	1	G	2.5000	–	+0.0020/ -0.0000	–	2.5060	–
	2342100-2043-1 thru -12	2	G	2.5000	–	+0.0020/ -0.0000	–	2.5060	–
5	Upper Cam - 2342103-1	1	H	–	2.9970	–	+0.0000/ -0.0020	–	2.9910
6	Orifice Tube - 2342113-1 [1]	7	J	–	1.2180	–	+0.0000/ -0.0010	–	1.2160
	1202-6	3	J	–	1.2180	–	+0.0000/ -0.0010	–	1.2160
	2481030-2	4	J	–	1.2180	–	+0.0000/ -0.0010	–	1.2160
	1202-26A	5	J	–	1.2180	–	+0.0000/ -0.0010	–	1.2160
	2380032-30	6	J	–	1.2180	–	+0.0000/ -0.0010	–	1.2160
7	Piston - 2342104-1	1	K	–	2.4940	–	+0.0000/ -0.0020	–	2.4950

Nose Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

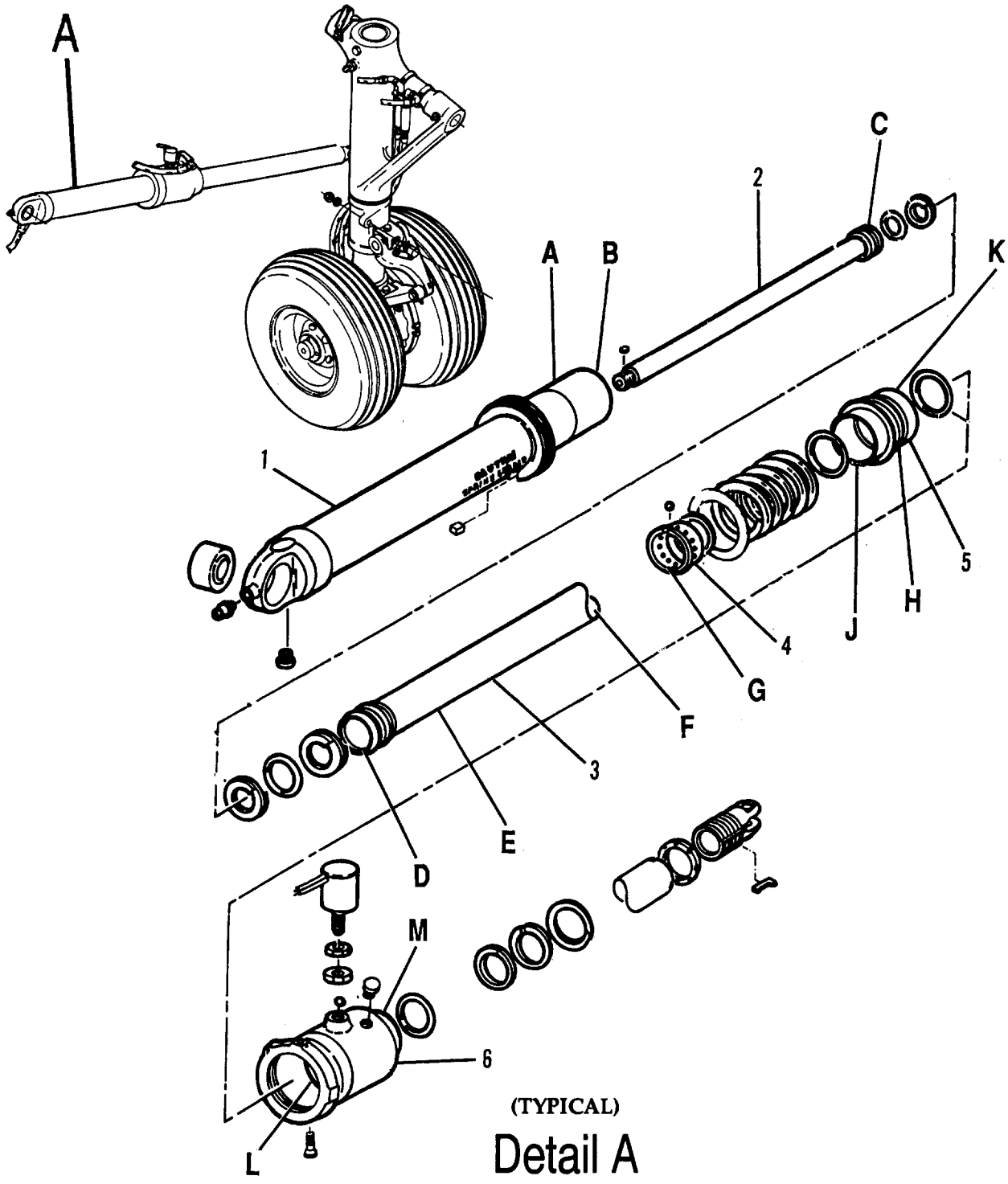
ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Axle - 2342117-1	1	D	Replace worn part.
2	Cylinder - 2342102-1	1	E	Replace worn part.
	2342100-2042-1 thru -12	2	E	Replace worn part.
3	Torque Block - 2342101-1	1	F	Replace worn part.
4	Cam Follower - 2342106-1, -3	1	G	Replace worn part.
	2342100-2043-1 thru -12	2	G	Replace worn part.
5	Upper Cam - 2342103-1	1	H	Replace worn part.
6	Orifice Tube - 2342103-1	7	J	Replace worn part.
	12-02-6	3	J	Replace worn part.
	2481030-2	4	J	Replace worn part.
	1202-26A	5	J	Replace worn part.
	2380032-30	6	J	Replace worn part.
7	Piston - 2342104-2	1	K	Replace worn part.

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 35-134 and Subsequent and Previous Aircraft Modified by SSK 973, "Replacement of Main Landing Gear Bushing and Pin"; 36-035 and Subsequent and Previous Aircraft Modified by AAK 90-02, "Replacement of Variable Authority Nose Wheel Steering Component"
3	23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-055, 23-060, 23-065, 23-087, and 23-096 Unless Mod 2 Is Steel Stamped On Name Plate
4	23-011, 23-012, 23-015, 23-019, 23-031, 23-043, 23-050, 23-051, 23-055, 23-060, 23-065, 23-087, and 23-096 When Mod 2 Is Steel Stamped On Name Plate
5	23-026 and Subsequent Except 23-031, 23-043, 23-050, 23-051, 23-055, 23-060, 23-065, 23-087; 24-001 and Subsequent
6	24-001 and Subsequent; 25-002 and Subsequent Except Aircraft Equipped With Variable Nose Wheel Steering
7	24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

NOTES:

1 At bearing surface of square parts (not diameter)

Nose Gear Shock Strut - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)



(TYPICAL)

Detail A

14-90C-2
A6-3C-1
A6-6C

Main Gear Actuator - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Cylinder - 2327101-1, -7, -11, -17	1	A	2.2450	–	+0.0020/ -0.0000	–	2.4330	–
		B	–	2.4360	–	+0.0030/ -0.0000	–	2.2520	
2	Inner Piston - 2427110-1	3	C	–	1.4870	–	+0.0020/ -0.0000	–	1.4840
	2327110-1	2	C	–	1.4870	–	+0.0020/ -0.0000	–	1.4840
3	Piston - 2327102-1, -2, -5	1	D	–	2.2430	–	+0.0000/ -0.0010	–	–
			E	–	1.8730	–	+0.0000/ -0.0020	–	–
			F	1.4910	–	+0.0020/ -0.0000	–	0.0050	–
4	Ball Housing - 2427104-1, -2	1	G	2.2170	1.8750	+0.0000/ -0.0020	+0.0020/ -0.0000	–	–
5	Plunger - 2427105-1, -002, -003	1	H	–	2.8110	–	+0.0000/ -0.0020	–	2.8070
			J	2.4380	–	+0.0020/ -0.0000	–	2.4420	–
			K	2.2260	–	+0.0020/ -0.0000	–	2.2350	–
6	Housing - 2327108-3, -7	1	L	2.8130	–	+0.0020 -0.0000	–	2.8190	–
			M	1.876	–	+0.0020 -0.0000	–	1.8850	–

Main Gear Actuator - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Cylinder - 2327101-1, -7, -11, -17	1	A, B	Replace worn part. 1
2	Inner Piston - 2427110-1	3	C	Replace worn part. 3
	2327110-1	2	C	Replace worn part. 3
3	Piston - 2327102-1, -2, -5	1	D	Replace worn part. 3
			E	Replace worn part. 1
			F	Replace worn part. 2
4	Ball Housing - 2427104-1, -2	1	G	Replace worn part. 4
5	Plunger - 2427105-1, -002, -003	1	H, J	Replace worn part. 2
			K	Replace worn part. 4
6	Housing - 2327108-3, -7	1	L, M	Replace worn part. 2

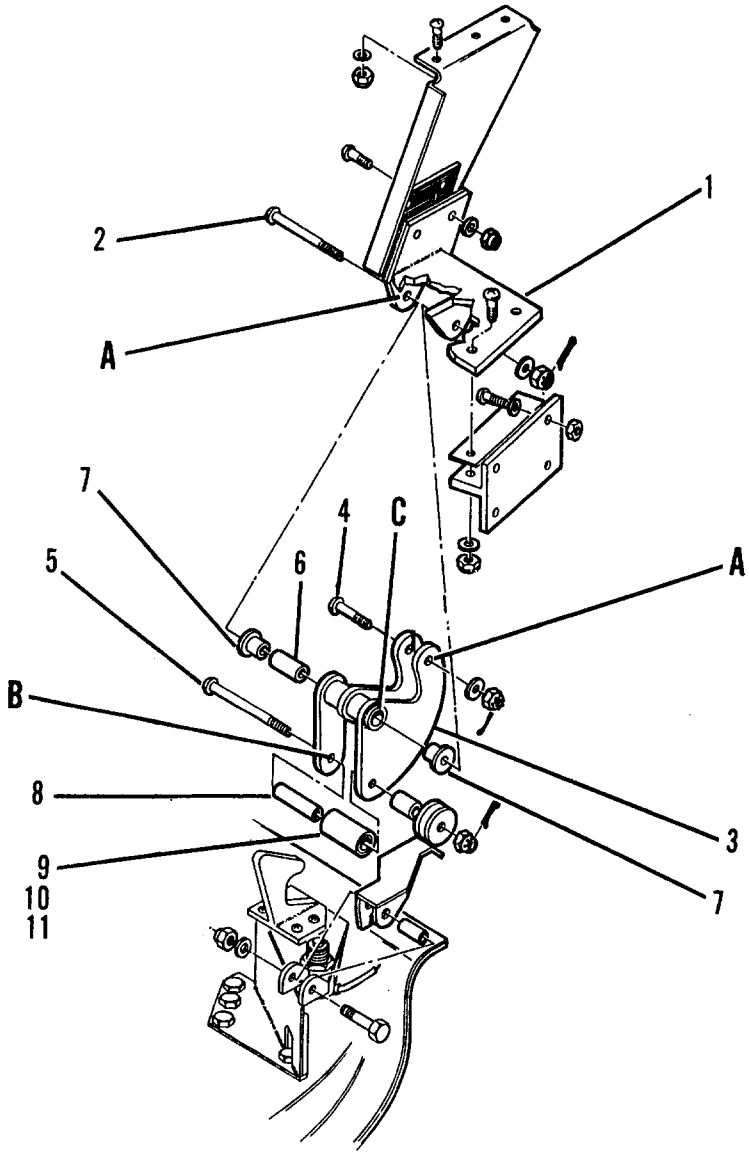
CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent, 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent, 29-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
3	31-001 and Subsequent and Aircraft Equipped With 2327101-11 or 2327101-17 Cylinder Assembly

NOTES:

1. 16 RMS.
2. 32 RMS.
3. 63 RMS.
4. 125 RMS.

Main Gear Actuator - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)

MAIN DOOR UPLATCH MECHANISM - ALLOWABLE WEAR AND REPAIR DATA



Main Door Uplatch Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	LH and RH Cam Bracket Assy - 2348042-1 and -2	1	A	0.2500	–	+0.0050/ -0.0010	–	–	–
2	Bolt - AN24-36	1	A	-	0.2480	–	+0.0000/ -0.0020	–	–
3	LH and RH Uplatch Cam Assy - 2348041-1 and -2	1	A	0.2500	–	+0.0050/ -0.0010	–	–	–
		1	B	0.2500	–	+0.0050/ -0.0010	–	–	–
		1	C	0.4380	–	+0.0010/ -0.0000	–	–	–
4	Bolt - AN24-17	1	A	–	0.248	–	+0.0000/ -0.0020	–	–
5	Bolt - AN24-36	1	B	–	0.248	–	+0.0000/ -0.0020	–	–
6	Bushing - NAS75-4-122	1	C	0.250	0.3716	+0.0015/ -0.0000	+0.0000/ -0.0005	–	–
7	Bushing, Nylinder - 6L6-F	1		–	–	1	–	–	–
8	Spacer - 2348041-10	1	B	0.250	0.313	+0.0050/ -0.0010	–	–	–
9	Roller - 2317060-6	1	B	0.385	0.562	+0.0000/ -0.0010	±0.0100	–	–
10	Spacer - 2317065-4	1	B	0.297	0.375	+0.0000/ -0.0410	+0.0000/ -0.0100	–	–
11	Bushing - 6L8D	1	B	–	–	1	–	–	–

Main Door Uplatch Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	LH and RH Cam Bracket Assy - 2348042-1 and -2	1	A	Replace worn part.
2	Bolt - AN24-36	1	A	Replace worn part.
3	LH and RH Uplatch Cam Assy - 2348041-1 and -2	1	A	Replace worn part.
4	Bolt - AN24-17	1	A	Replace worn part.
5	Bolt - AN24-36	1	B	Replace worn part.
6	Bushing - NAS75-4-122	1	C	Replace worn part.
7	Bushing, Nylinder - 6L6-F	1	C	Replace worn part.
8	Spacer - 2348041-10	1	B	Replace worn part.
9	Roller - 2317060-6	1	B	Replace worn part.
10	Spacer - 2317065-4	1	B	Replace worn part.
11	Bushing - 6L8D	1	B	Replace worn part.

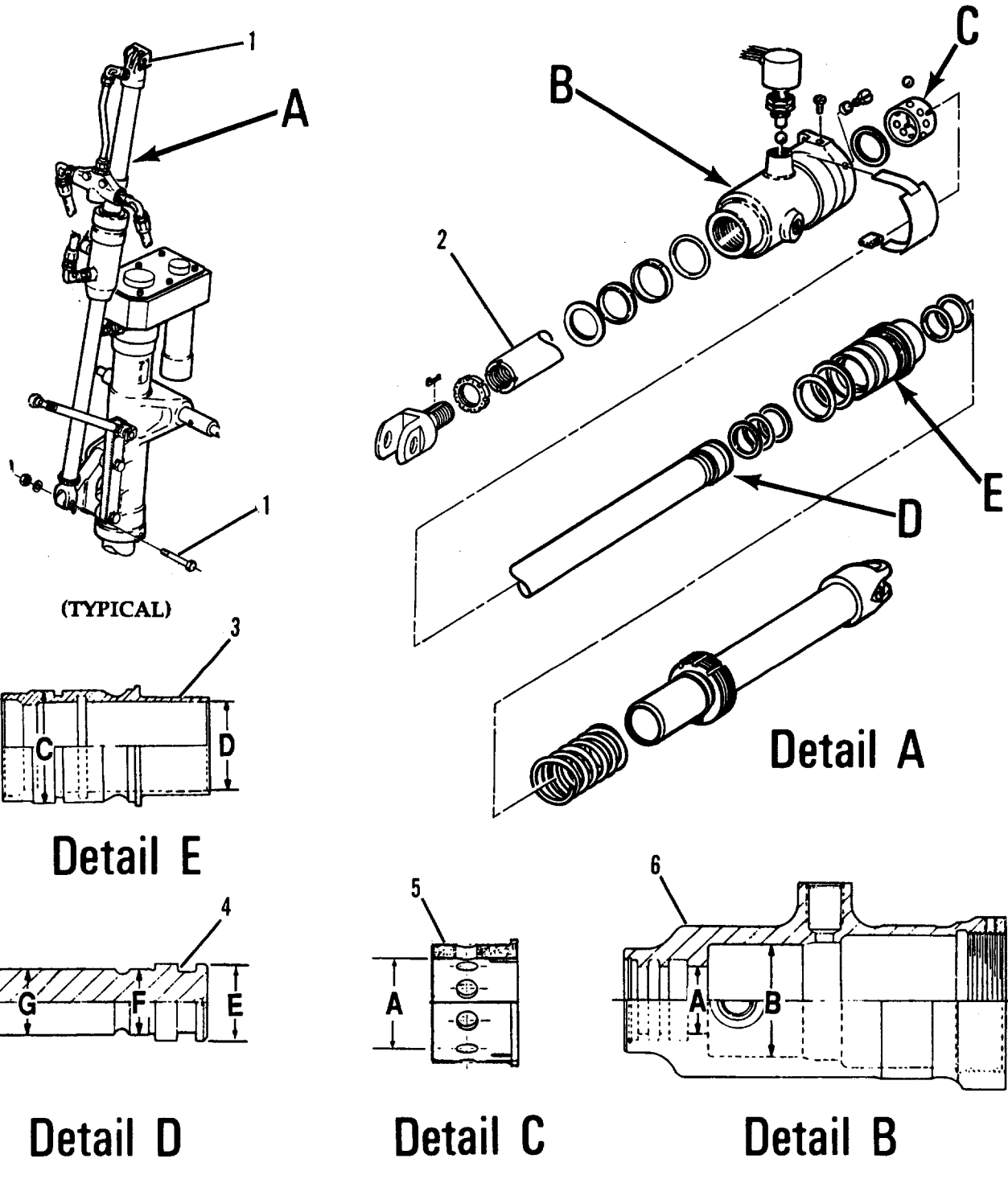
CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

NOTES:

1 Product of Industrial Bearing & Transmission, 325 N. St. Francis, Wichita, KS 67202.

Main Door Uplatch Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)

NOSE GEAR ACTUATOR - ALLOWABLE WEAR AND REPAIR DATA



Nose Gear Actuator - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Upper Attach Bolt - NAS464P7L53	1	–	–	0.4358	–	+0.0009/ -0.0000	–	+0.4330/
	Lower Attach Bolt - NAS464P7L20	1	–	–	0.4358	–	+0.0009/ -0.0009	–	+0.4330/ -0.0000
2	Cylinder Assembly - 1202-202	2	–	1.4360	1.6270	+0.0000/ -0.0020	+0.0000/ -0.0020	1.4400	1.4400
	2317101-12 (Alt. 2317101-13)	3	–	1.4360	1.6270	+0.0000/ -0.0020	+0.0000/ -0.0020	1.4400	1.4400
3	Plunger - 1202-209	2	C	–	1.9900	–	+0.0000/ -0.0020	–	1.9890
			D	–	1.6310	–	+0.0000/ -0.0020	–	1.6330
	2317105-1, -002	3	C	–	1.9900	–	+0.0000/ -0.0020	–	1.9890
			D	–	1.6310	–	+0.0000/ -0.0020	–	1.6330
4	Piston - 1202-204	2	E	–	1.4340	–	+0.0000/ -0.0020	–	1.4300
			F	–	1.1240	–	+0.0000/ -0.0020	–	1.2200
			G	–	1.1240	–	+0.0000/	–	1.2200
	2317102-1, -2, -5	3	E	–	1.4340	–	+0.0000/ -0.0020	–	1.4300
			F	–	1.1220	–	+0.0020/ -0.0000	–	1.2200
			G	–	1.1240	–	+0.0000/ -0.0020	–	1.2200
5	Downlock Ball Housing - 1202-207	2	A	1.1260	–	+0.0020/ -0.0000	–	1.1300	–
	2317104-1	3	A	1.1260	–	+0.0020/ -0.0000	–	1.1300	–
6	Housing - 1202-211A	2	B	1.9920	–	+0.0020/ -0.0000	–	1.9970	–
			A	1.1270	–	+0.0000/ -0.0020	–	1.1310	–
	2317108-1, -3, -8	3	B	1.9920	–	+0.0020/ -0.0000	–	1.9970	–
			A	1.1270	–	+0.0000/ -0.0020	–	1.1310	–

Nose Gear Actuator - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Upper Attach Bolt - NAS464P7L53	1	–	Replace worn part. 1
	Lower Attach Bolt - NAS464P7L20	1	–	Replace worn part. 1
2	Cylinder Assembly - 1202-202	2	–	Replace worn part. 2
	2317101-12 (Alt. 2317101-13)	3	–	Replace worn part. 2
3	Plunger - 1202-209	1	C	Replace worn part. 1
			D	Replace worn part. 1
	2317105-1, -002	1	C	Replace worn part. 1
			D	Replace worn part. 1
4	Piston - 2317102-2	2	E	Replace worn part. 1
			F	Replace worn part. 1
			G	Replace worn part. 2
	2317102-1, -2, -5	3	E	Replace worn part. 1
			F	Replace worn part. 1
			G	Replace worn part. 2
5	Downlock Ball Housing - 1202-207	2	A	Replace worn part. 1
	2317104-1	3	A	Replace worn part. 1
6	Housing -1202-211A	1	B	Replace worn part. 1
			A	Replace worn part. 1
	2317108-3	1	B	Replace worn part. 1
			A	Replace worn part. 1

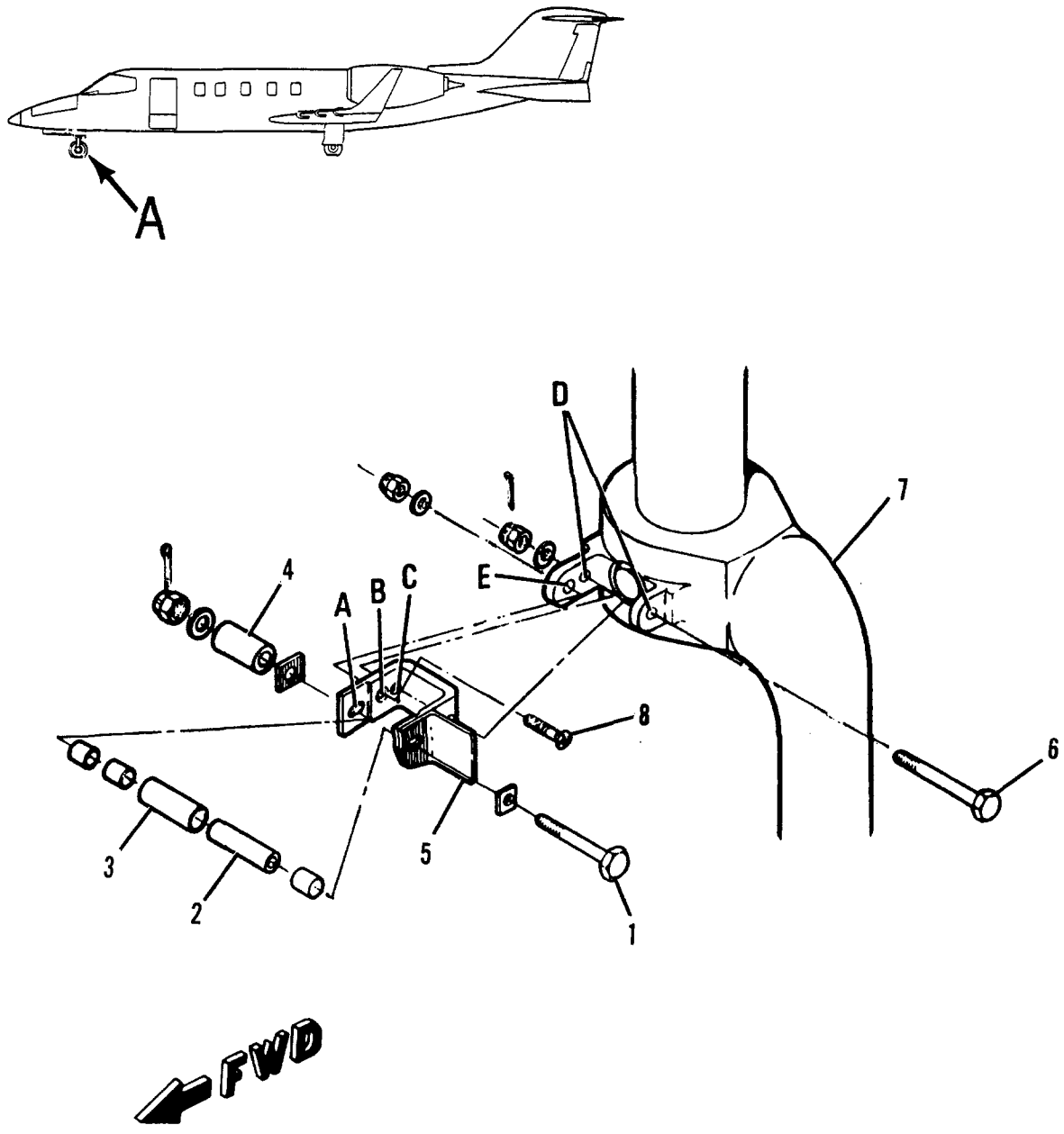
CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-001 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-010, 23-013, 23-014, 23-016, 23-017, 23-018, 23-020 thru 23-025 Except Aircraft Modified per SSK 23-214
3	23-011, 23-012, 23-015, 23-019, 23-026 thru 23-099 and Aircraft Modified per SSK 23-214; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

NOTES:

1 32 RMS

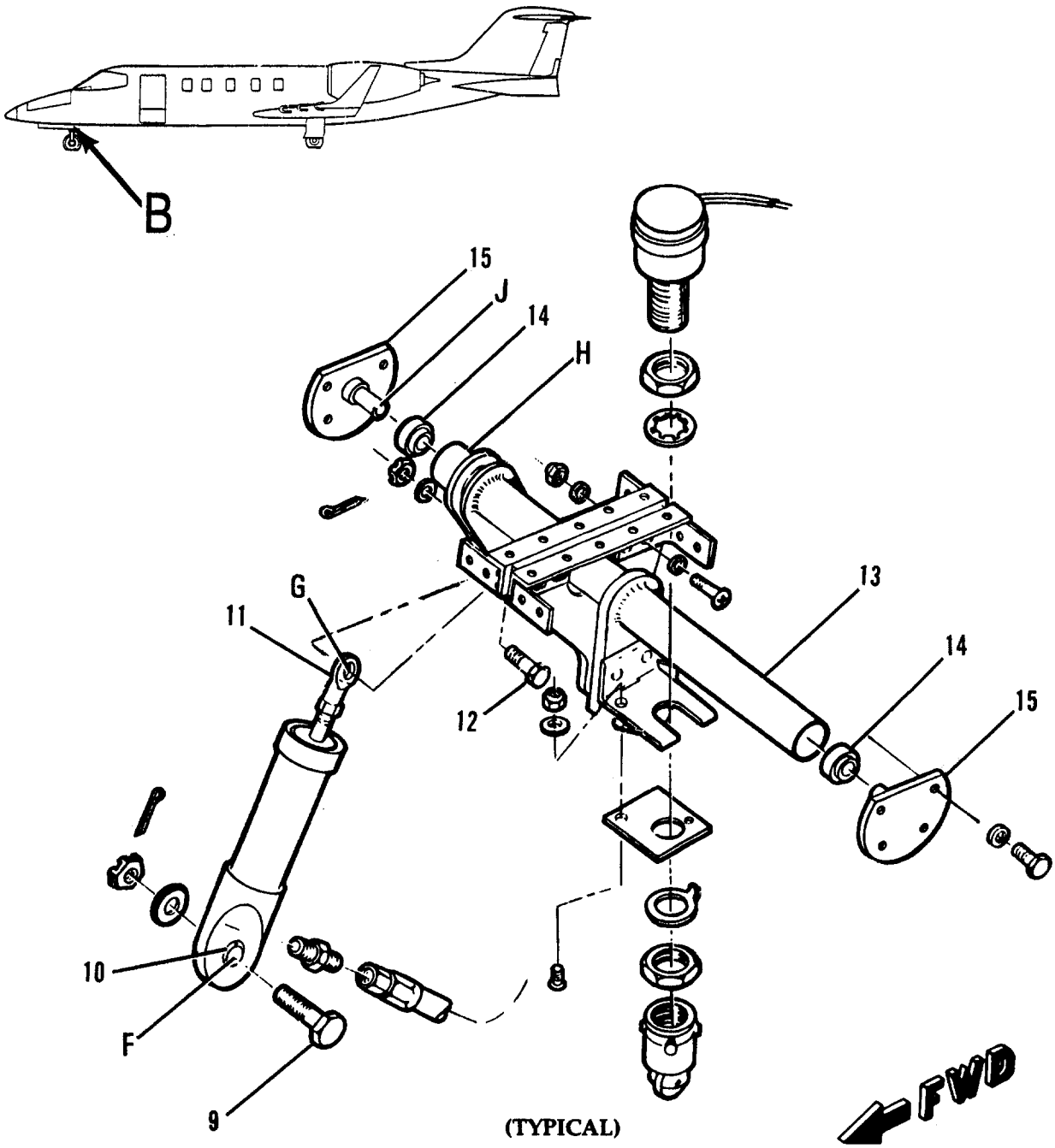
2 16 RMS

Nose Gear Actuator - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)



(TYPICAL)

Detail A



Detail B

Nose Gear Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Bolt - AN4-24	4	A	–	0.2490	–	+0.0000/ -0.0030	–	–
	AN4-34	5	A	–	0.2490	–	+0.0000/ -0.0030	–	–
2	Spacer - 2317065-1	1	A	0.2970	0.3750	+0.0000/	+0.0000/ -0.0410	– -0.0100	–
3	Roller - 2317060-2	6	A	0.4445	0.5620	+0.0000/ -0.0010	+0.0100 -0.0100	–	–
	2317060-5	7	A	0.4445	0.5620	+0.0000/ -0.0010	+0.0100 -0.0100	–	–
4	Spacer - 2317065-3	1	A	0.2570	0.5620	+0.0060/ -0.0010	+0.0100 -0.0100	–	–
5	Support - 2317063-1, -4 -6, -8	8	A	0.2570 (Slot)	–	+0.0000/ -0.0090	–	–	–
			B	0.1930	–	+0.0050/ -0.0000	–	–	–
			C	0.2500	–	+0.0100 -0.0100	–	–	–
	2442010-1, -7	9	A	0.2570 (Slot)	–	+0.0000/ -0.0090	–	–	–
			B	0.1930	–	+0.0050/ -0.0000	–	–	–
			C	0.2500	–	+0.0100 -0.0100	–	–	–
6	Bolt - NAS464P4-37	1	C, D	–	0.2492	–	+0.0000/ -0.0009	–	–
7	Nose Gear Piston Assy.	1	D	0.2500	–	+0.0010/ -0.0000	–	–	–
			E	0.1900	–	+0.0020/ -0.0000	–	–	–
8	Screw - AN509-10R11	1	B, E	–	0.1890	–	+0.0000/ -0.0030	–	–
9	Bolt - NAS464P6-8	1	F	–	0.3742	–	+0.0000/ -0.0009	–	–
10	Bearing - MS21233-6	1	F	0.3750	0.8125	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
11	Rod End - MS21243604K	1	G	0.2500	–	+0.0000/ -0.0005	–	–	–
12	Bolt - NAS464P4-8	1	G	–	0.2492	–	+0.0000/ -0.0009	–	–

Nose Gear Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 5)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE ID	MFD ALLOWANCE OD	WEAR ALLOWANCE ID	WEAR ALLOWANCE OD
13	Torque Tube Assy, Nose Gear Uplatch - 2317029-1, -11, -16, -17, -23	1	H	0.7491	–	+0.0010/ -0.0000	–	–	–
14	Bearing - LHBV-5 (Alt. KSBG-5N) (Alt. LHBR-5) (Alt. MS21233-5)	1	H	0.3125	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
15	Pivot - 2317058-2	1	J	–	0.3110	–	+0.0010/ -0.0000	–	–

Nose Gear Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 5)

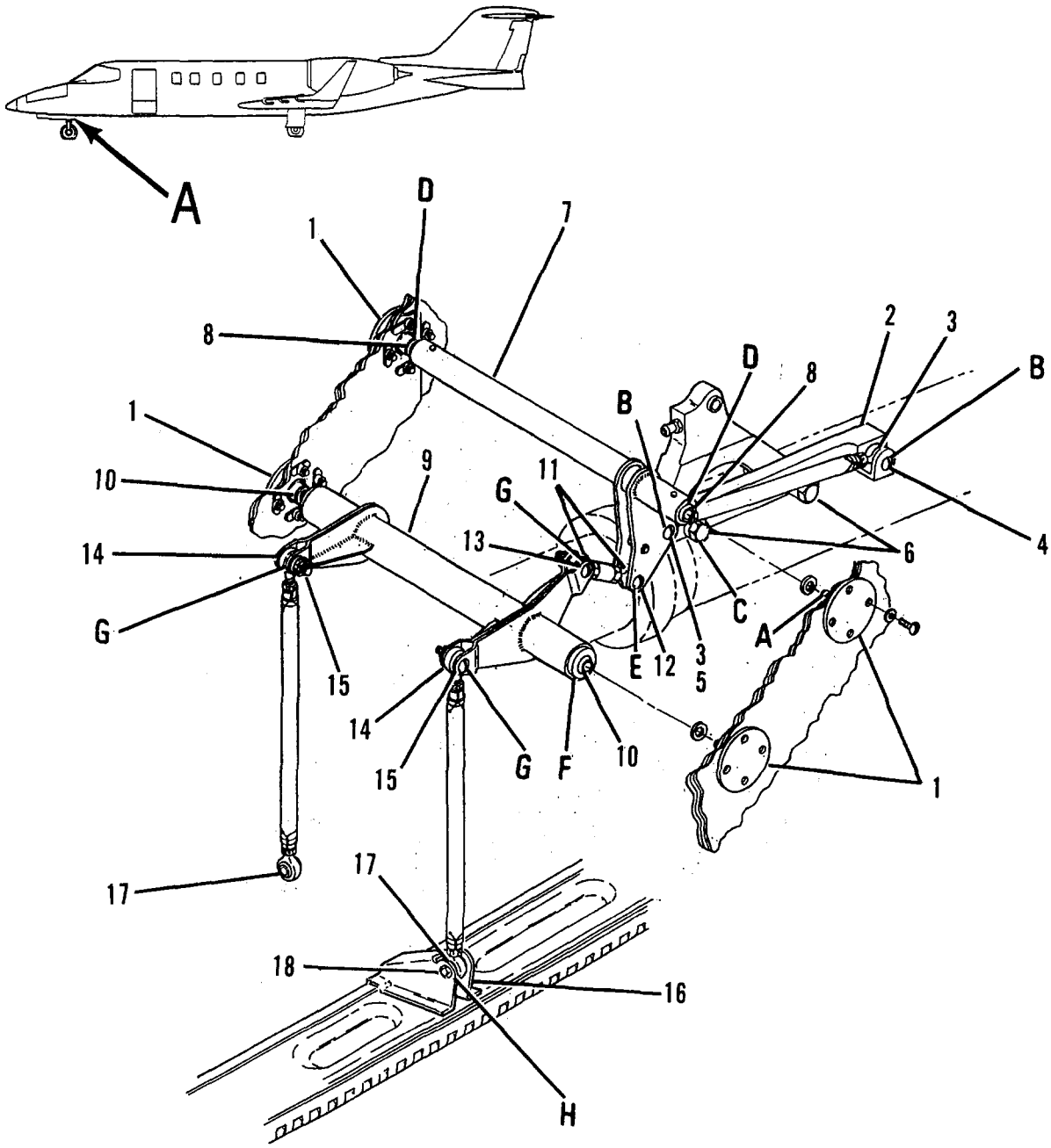
REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Bolt - AN4-24	2	A	Replace worn part.
	AN4-34	3	A	Replace worn part.
2	Spacer - 2317065-1	1	A	Replace worn part.
3	Roller - 2317060-2	4	A	Replace worn part.
	2317060-5	5	A	Replace worn part.
4	Spacer - 2317065-3	1	A	Replace worn part.
5	Support - 2317063-1, -4, -6, -8	6	A, B, C	Replace worn part.
	Support - 2442010-1, -7	7	A, B, C	Replace worn part.
6	Bolt - NAS464P4-37	1	C, D	Replace worn part.
7	Nose Gear Piston Assy.	1	D, E	Replace worn part.
8	Screw - AN509-10R11	1	B, E	Replace worn part.
9	Bolt - NAS464P6-8	1	F	Replace worn part.
10	Bearing - MS21233-6	1	F	Replace worn part. Install new bearing with Loctite.
11	Rod End - MS21243S04K	1	G	Replace worn part.
12	Bolt - NAS464P4-8	1	G	Replace worn part.
13	Torque Tube Assy., Nose Gear Uplatch - 2317029-23	1	H	Replace worn part.
14	Bearing - LHBV-5 (Alt. KSBG-5N) (Alt. LHBR-5) (Alt. MS21233-5)	1	H	Replace worn part. Install new bearing with wet primer, exterior surface only.
15	Pivot - 2317058-2	1	J	Replace worn part.

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
2	23-001 thru 23-059 Except Aircraft Modified by SK 23-129, "Installation of Nose Gear Uplatch Safety Cam"
3	23-060 and Subsequent and Aircraft Modified by SK 23-129, "Installation of Nose Gear Uplatch Safety Cam"
4	23-003 thru 23-010, 23-013, 23-014, 23-016 thru 23-018, 23-020 thru 23-030, 23-032 thru 23-038, 23-040 thru 23-042, 23-044 thru 23-049, 23-050a, 23-052 thru 23-054, 23-056 thru 23-059, 23-061 thru 23-064, 23-065a thru 23-086, 23-088 thru 23-095, 23-097 and Subsequent Except Aircraft Modified per ECR392
5	23-011, 23-012, 23-015, 23-019, 23-031, 23-039, 23-043, 23-050, 23-051, 23-055, 23-060, 23-065, 23-087, 23-096 and Model 23 Series Aircraft Modified by ECR392; 24-100 and Subsequent; 25-001 and Subsequent, 28-001 and Subsequent, 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent
6	23-001 thru 23-099; 24-100 thru 24-223; 25-001 thru 25-059
7	24-224 and Subsequent; 25-060 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Nose Gear Uplatch - Allowable Wear and Repair Data
Figure 1 (Sheet 5 of 5)

NOSE GEAR DOOR MECHANISM - ALLOWABLE WEAR AND REPAIR DATA



(TYPICAL)

Detail A

1-11C

Nose Gear Door Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 4)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Pivot - 2317058-1	1	A	–	0.3110	–	+0.0010/ -0.0000	–	–
2	Channel Assy. - 2317045-8, -9, -10	1	B	0.2500	–	+0.0050/ -0.0010	–	–	–
			C	0.4991	–	+0.0015/ -0.0000	–	–	–
3	Rod End - MS21242-4	1	B	0.2500	–	+0.0000/ -0.0005	–	–	–
	(Alt. MS21242S4)		B	0.2500	–	+0.0000/ -0.0005	–	–	–
	(Alt. KBNE-4)		B	0.2500	–	+0.0000/ -0.0005	–	–	–
4	Bolt - AN24-32	1	B	–	0.2480	–	+0.0000/ -0.0020	–	–
5	Bolt - AN24-15, -22	1	B	–	0.2480	–	+0.0000/ -0.0020	–	–
6	Bolt - NAS464P8-33, -36, -40	1	C	–	0.4991	–	+0.0000/ -0.0009	–	–
7	Torque Tube Assy. - 2317047-9, -11	1	D	–	–	–	–	–	–
			E	0.2500	–	+0.0050/ -0.0010	–	–	–
8	Bearing - LHBV-5	1	D	–	–	–	–	–	–
	(Alt. RSST-5)		D	–	–	–	–	–	–
	(Alt. LHBR-5)		D	–	–	–	–	–	–
	(Alt. MS21233-5)		D	0.3125	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
	(Alt. KSBG-5N)		D	–	–	–	–	–	–
9	Torque Tube Assy. - 2317048-1	1	F	0.7510	–	+0.0050/ -0.0000	–	–	–
			G	0.2500	–	+0.0050/ -0.0010	–	–	–
10	Bearing - LHBV-5	1	F	–	–	–	–	–	–
	(Alt. KSBG-5N)		F	–	–	–	–	–	–
	(Alt. LHBR-5)		F	–	–	–	–	–	–
	(Alt. MS21233-5)		F	0.3125	0.7500	+0.0000/ -0.0005	+0.0000/ -0.0005	–	–
11	Rod End - 2317046-9	1	E	–	–	–	–	–	–
12	Bolt - AN24-22	1	E	–	0.2480	–	+0.000/ -0.0020	–	–
13	Bolt - AN24-15	1	E	–	0.2480	–	+0.0000/ -0.0020	–	–

Nose Gear Door Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 4)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
14	Rod End - HMV4	1	G	–	–	–	–	–	–
	(Alt. HMV-V4)		G	–	–	–	–	–	–
	(Alt. REM-4T)		G	–	–	–	–	–	–
	(Alt. TRE-4T)		G	–	–	–	–	–	–
15	Bolt - AN24-15	1	G	–	0.2480	–	+0.0000/ -0.0020	–	–
16	Bracket - 2310620-14	1	H	0.2500	–	+0.0050/ -0.0010	–	–	–
17	Rod End - HMV4	1	H	–	–	–	–	–	–
	(Alt. HMV V4)		H	–	–	–	–	–	–
	(Alt. REM-4T)		H	–	–	–	–	–	–
	(Alt. TRE-4T)		H	–	–	–	–	–	–
18	Bolt - NAS464P4-12	1	H	–	0.2492	–	+0.0000/ -0.0009	–	–

Nose Gear Door Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 4)

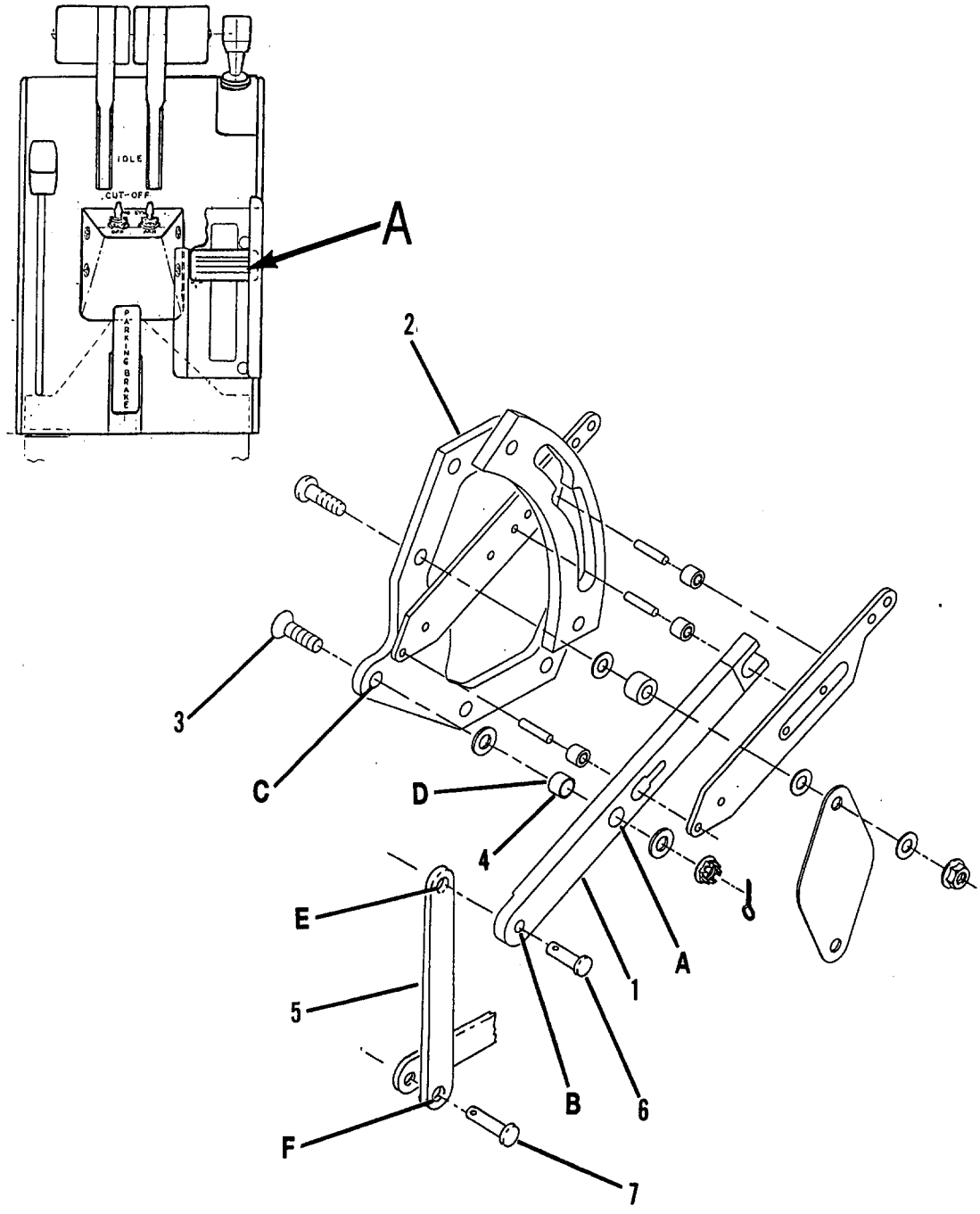
REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Pivot - 2317058-1	1	A	Replace worn part.
2	Channel Assy. - 2317045-8, -9, -10	1	B, C	Replace worn part.
3	Rod End - MS21242-4	1	B	Replace worn part.
	(Alt. MS21242S04)		B	Replace worn part.
	(Alt. KBNE-4)		B	Replace worn part.
4	Bolt - AN24-32	1	B	Replace worn part.
5	Bolt - AN24-15, -22	1	B	Replace worn part.
6	Bolt - NAS464P8-33, -36, -40	1	C	Replace worn part.
7	Torque Tube Assy. - 2317047-9, -11	1	D, E	Replace worn part.
8	Bearing - LHBV-5	1	D	Replace worn part.
	(Alt. RSST-5)		D	Replace worn part.
	(Alt. LHBR-5)		D	Replace worn part.
	(Alt. MS21233-5)		D	Replace worn part.
	(Alt. KSBG-5N)		D	Replace worn part.
9	Torque Tube Assy. - 2317048-1	1	F, G	Replace worn part.
10	Bearing - LHBV-5	1	F	Replace worn part.
	(Alt. LHBR-5)		F	Replace worn part.
	(Alt. MS21233-5)		F	Replace worn part.
	(Alt. KSBG-5N)		F	Replace worn part.
11	Rod End - 2317046-9	1	E	Replace worn part.
12	Bolt - AN24-22	1	E	Replace worn part.
13	Bolt - AN24-15	1	E	Replace worn part.
14	Rod End - HMV4	1	G	Replace worn part.
	(Alt. HMV-V4)		G	Replace worn part.
	(Alt. REM-4T)		G	Replace worn part.
	(Alt. TRE-4T)		G	Replace worn part.
15	Bolt - AN24-15	1	G	Replace worn part.
16	Bracket - 2310620-14	1	H	Replace worn part.
17	Rod End - HMV4	1	H	Replace worn part.
	(Alt. HMV-V4)		H	Replace worn part.
	(Alt. REM-4T)		H	Replace worn part.
	(Alt. TRE-4T)		H	Replace worn part.
18	Bolt - NAS464P1-12	1	H	Replace worn part.

CODES	EFFECTIVITIES
1	23-001 thru 23-099; 24-100 and Subsequent; 25-001 and Subsequent; 28-001 and Subsequent; 29-001 and Subsequent; 31-001 and Subsequent; 35-001 and Subsequent; 36-001 and Subsequent

Nose Gear Door Mechanism - Allowable Wear and Repair Data
Figure 1 (Sheet 4 of 4)

FLAP PRESELECT ASSEMBLY - ALLOWABLE WEAR AND REPAIR DATA



Detail A

M31-8-151A

Flap Preselect Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 1 of 3)

WEAR ALLOWANCES

ITEM NO.	DESCRIPTION	EFF.	HOLE	MFD HOLE ID	MFD SHAFT OD	MFD ALLOWANCE		WEAR ALLOWANCE	
						ID	OD	ID	OD
1	Handle - 2615269-5	1	A	0.3750	–	+0.0020/ -0.0000	–	–	–
			B	0.1250	–	+0.0020/ -0.0000	–	–	–
2	Frame - 2615269-16	1	C	0.1890	–	–	–	–	–
3	Screw - NAS1203-110	1	D	–	0.1895	–	+0.0000/ -0.0010	–	–
4	Bushing - 2615268-3	1	A	–	0.3735	–	–	–	–
5	Link - 2615269-32	1	E	0.1250	–	+0.0020/ -0.0000	–	–	–
			F	0.1250	–	+0.0020/ -0.0000	–	–	–
6	Pin - MS20392-1C13	1	E	–	0.1240	–	+0.0000/ -0.0020	–	–
7	Pin - MS20392-1C7	1	F	–	0.1240	–	+0.0000/ -0.0020	–	–

Flap Preselect Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 2 of 3)

REPAIR DATA

ITEM NO.	DESCRIPTION	EFF.	HOLE	REPAIR
1	Handle - 2615269-5	1	A, B	Replace worn part.
2	Frame - 2615269-16	1	C	Replace worn part.
3	Screw - NAS1203-110	1	D	Replace worn part.
4	Bushing - 2615268-3	1	A	Replace worn part.
5	Link - 2615269-32	1	E, F	Replace worn part.
6	Pin - MS20392-1C13	1	E	Replace worn part.
7	Pin - MS20392-1C7	1	F	Replace worn part.

CODES	EFFECTIVITIES
1	31-001 and Subsequent; 35-509 and Subsequent; 36-054 and Subsequent

Flap Preselect Assembly - Allowable Wear and Repair Data
Figure 1 (Sheet 3 of 3)

CHAPTER

52

DOORS

Subject	Chapter Section Subject	Page
DOORS - STRUCTURAL IDENTIFICATION	52-00-00	
Description	52-00-00	1
PASSENGER/CREW UPPER DOOR (24-Inch Door) - STRUCTURAL IDENTIFICATION	52-10-00	
Description	52-10-00	1
Passenger/Crew Upper (24-Inch) Door Structure Repair Index	52-10-00	1
PASSENGER/CREW UPPER DOOR (36-Inch Door) - STRUCTURAL IDENTIFICATION	52-10-00	
Description	52-10-00	7
Passenger/Crew Upper (36-Inch) Door Structure Repair Index	52-10-00	7
PASSENGER/CREW UPPER DOOR - ALLOWABLE DAMAGE	52-10-00	
Allowable Damage Limits	52-10-00	101
PASSENGER/CREW UPPER DOOR - REPAIR	52-10-00	
Approved Repairs	52-10-00	201
PASSENGER/CREW LOWER DOOR (24-Inch Door) - STRUCTURAL IDENTIFICATION	52-10-10	
Description	52-10-10	1
Passenger/Crew Lower (24-Inch) Door Structure Repair Index	52-10-10	1
PASSENGER/CREW LOWER DOOR (36-Inch Door) - STRUCTURAL IDENTIFICATION	52-10-10	
Description	52-10-10	5
Passenger/Crew Lower (36-Inch) Door Structure Repair Index	52-10-00	5
PASSENGER/CREW LOWER DOOR - ALLOWABLE DAMAGE	52-10-10	
Allowable Damage Limits	52-10-10	101
PASSENGER/CREW LOWER DOOR - REPAIR	52-10-10	
Approved Repairs	52-10-10	201
EMERGENCY EXIT DOOR - STRUCTURAL IDENTIFICATION	52-20-00	
Description	52-20-00	1
Emergency Exit Door Structure Repair Index	52-20-00	1
EMERGENCY EXIT DOOR - ALLOWABLE DAMAGE	52-20-00	
Allowable Damage Limits	52-20-00	101
EMERGENCY EXIT DOOR - REPAIR	52-20-00	
Approved Repairs	52-20-00	201
SERVICE DOORS - STRUCTURAL IDENTIFICATION	52-40-00	
Description	52-40-00	1
TAILCONE ACCESS DOOR - STRUCTURAL IDENTIFICATION	52-40-01	
Tailcone Access Door Structure Repair Index	52-40-01	1
TAILCONE ACCESS DOOR - ALLOWABLE DAMAGE	52-40-01	
Allowable Damage Limits	52-40-01	101
TAILCONE ACCESS DOOR - REPAIR	52-40-01	
Approved Repairs	52-40-01	201
NOSE COMPARTMENT ACCESS DOORS - STRUCTURAL IDENTIFICATION	52-40-05	
Nose Compartment Access Doors Structure Repair Index	52-40-05	1
NOSE COMPARTMENT ACCESS DOORS - ALLOWABLE DAMAGE	52-40-05	
Allowable Damage Limits	52-40-05	101

Subject	Chapter Section Subject	Page
NOSE COMPARTMENT ACCESS DOORS - REPAIR	52-40-05	
Approved Repairs	52-40-05	201
OIL FILLER ACCESS DOOR - STRUCTURAL IDENTIFICATION	52-40-10	
Oil Filler Access Door Structure Repair Index	52-40-10	1
OIL FILLER ACCESS DOOR - ALLOWABLE DAMAGE	52-40-10	
Allowable Damage Limits	52-40-10	101
OIL FILLER ACCESS DOOR - REPAIR	52-40-10	
Approved Repairs	52-40-10	201
OXYGEN BOTTLE ACCESS DOOR - STRUCTURAL IDENTIFICATION	52-40-15	
Oxygen Bottle (Nose Compartment) Access Door Structure Repair Index	52-40-15	1
Oxygen Bottle (Dorsal Fin) Access Door Structure Repair Index	52-40-15	2
OXYGEN BOTTLE ACCESS DOOR - ALLOWABLE DAMAGE	52-40-15	
Allowable Damage Limits	52-40-15	101
OXYGEN BOTTLE ACCESS DOOR - REPAIR	52-40-15	
Approved Repairs	52-40-15	201
SINGLE-POINT PRESSURE REFUELING DOOR - STRUCTURAL IDENTIFICATION	52-40-20	
Single-Point Pressure Refueling Door Structure Repair Index	52-40-20	1
SINGLE-POINT PRESSURE REFUELING DOOR - ALLOWABLE DAMAGE	52-40-20	
Allowable Damage Limits	52-40-20	101
SINGLE-POINT PRESSURE REFUELING DOOR - REPAIR	52-40-20	
Approved Repairs	52-40-20	201
MAIN LANDING GEAR DOORS - STRUCTURAL IDENTIFICATION	52-80-00	
Description	52-80-00	1
MAIN LANDING GEAR INBOARD DOOR - STRUCTURAL IDENTIFICATION	52-80-10	
Main Landing Gear Inboard Door Structure Repair Index	52-80-10	1
MAIN LANDING GEAR INBOARD DOOR - ALLOWABLE DAMAGE	52-80-10	
Allowable Damage Limits	52-80-10	101
MAIN LANDING GEAR INBOARD DOOR - REPAIR	52-80-10	
Approved Repairs	52-80-10	201
MAIN LANDING GEAR OUTBOARD DOOR - STRUCTURAL IDENTIFICATION	52-80-20	
Main Landing Gear Outboard Door Structure Repair Index	52-80-20	1
MAIN LANDING GEAR OUTBOARD DOOR - ALLOWABLE DAMAGE	52-80-20	
Allowable Damage Limits	52-80-20	101
MAIN LANDING GEAR OUTBOARD DOOR - REPAIR	52-80-20	
Approved Repairs	52-80-20	201
NOSE LANDING GEAR DOOR - STRUCTURAL IDENTIFICATION	52-81-00	
Nose Landing Gear Door Structure Repair Index	52-81-00	1
NOSE LANDING GEAR DOOR - ALLOWABLE DAMAGE	52-81-00	
Allowable Damage Limits	52-81-00	101
NOSE LANDING GEAR DOOR - REPAIR	52-81-00	
Approved Repairs	52-81-00	201

Learjet

STRUCTURAL REPAIR MANUAL

Chapter Section Subject	Page	Date
52-TITLE		
* 52-List of Eff. Pgs.	1	Jun 1/95
52-Contents	1	May 15/92
52-Contents	2	May 15/92
52-00-00	1	May 15/92
52-00-00	2	May 15/92
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52-10-00	8	May 15/92
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52-10-00	201	May 15/92
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* 52-10-10	1	Jun 1/95
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* 52-10-10	3	Jun 1/95
* 52-10-10	4	Jun 1/95
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* 52-10-10	8	Jun 1/95
* 52-10-10	9	Jun 1/95
* 52-10-10	10	Jun 1/95
* 52-10-10	11	Jun 1/95
* 52-10-10	12	Jun 1/95
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52-10-10	201	May 15/92
52-10-10	202	May 15/92
52-20-00	1	May 15/92
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52-20-00	3	May 15/92
52-20-00	4	May 15/92
52-20-00	5	May 15/92
52-20-00	6	May 15/92

Chapter Section Subject	Page	Date
52-20-00	101	May 15/92
52-20-00	102	May 15/92
52-20-00	201	May 15/92
52-40-00	1	May 15/92
* 52-40-01	1	Jun 1/95
* 52-40-01	2	Jun 1/95
* 52-40-01	3	Jun 1/95
52-40-01	101	May 15/92
52-40-01	102	May 15/92
52-40-01	201	May 15/92
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52-40-15	1	May 15/92
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52-40-15	102	May 15/92
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52-40-15	202	May 15/92
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52-40-20	102	May 15/92
52-40-20	201	May 15/92
52-80-00	1	May 15/92
52-80-10	1	May 15/92
52-80-10	2	May 15/92
52-80-10	101	May 15/92
52-80-10	102	May 15/92
52-80-10	201	May 15/92
52-80-20	1	May 15/92
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52-80-20	101	May 15/92
52-80-20	102	May 15/92
52-80-20	201	May 15/92
52-81-00	1	May 15/92
52-81-00	2	May 15/92
52-81-00	101	May 15/92
52-81-00	102	May 15/92
52-81-00	201	May 15/92

Insert Latest Revised Pages; Destroy Superseded or Deleted Pages.
* Asterisk indicates pages revised, added or deleted by current revision.
The portion of the text affected by the current revision is indicated by a vertical line in the outer margin of the page.

DOORS - STRUCTURAL IDENTIFICATION

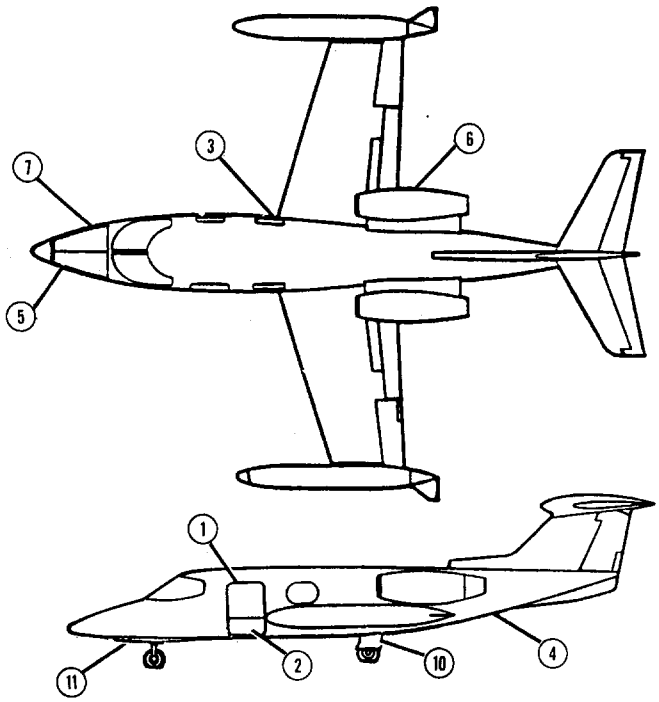
1. DESCRIPTION

NOTE: The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

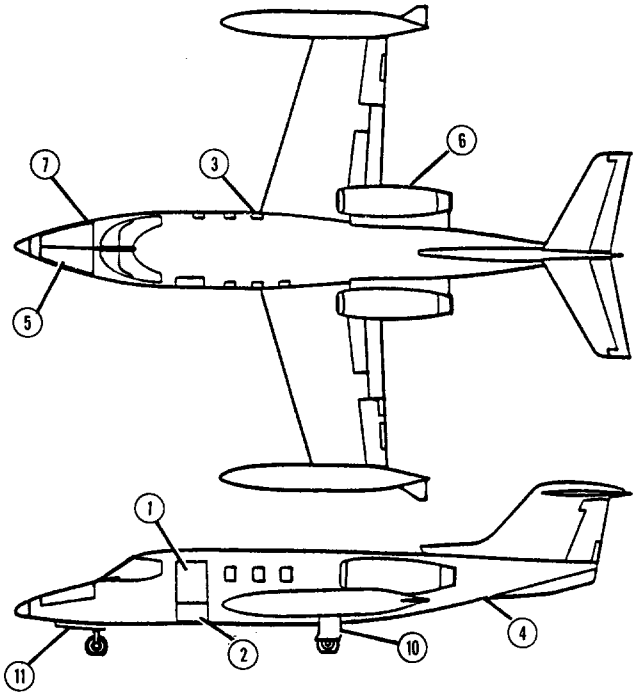
A. This Chapter covers structural components, allowable damage limits, skin gap tolerances, and repair of aircraft doors.
B. A door master repair index (Figure 1) is incorporated to aid in location of specific component repair indexes throughout this chapter.
C. Allowable damage limits for each door are given in each respective section.
D. Skin gap tolerances for each door are given in each respective section.

Item	Description	Chapter Section Subject
1	Passenger/Crew Upper Door	52-10-00
2	Passenger/Crew Lower Door	52-10-10
3	Emergency Exit Door	52-20-00
4	Tailcone Access Door	52-40-00
5	Nose Compartment Access Doors	52-40-05
6	Oil Filler Access Door	52-40-10
7	Oxygen Bottle Access Door (*Nose Cylinder Oxygen System*)	52-40-15
8	Oxygen Bottle Access Door (*Dorsal Cylinder Oxygen System*)	52-40-15
9	Single-Point Pressure Refueling Door	52-40-20
10	Main Landing Gear Doors	52-80-00
11	Nose Landing Gear Doors	52-81-00

Master Door Repair Index
Figure 1 (Sheet 1 of 4)

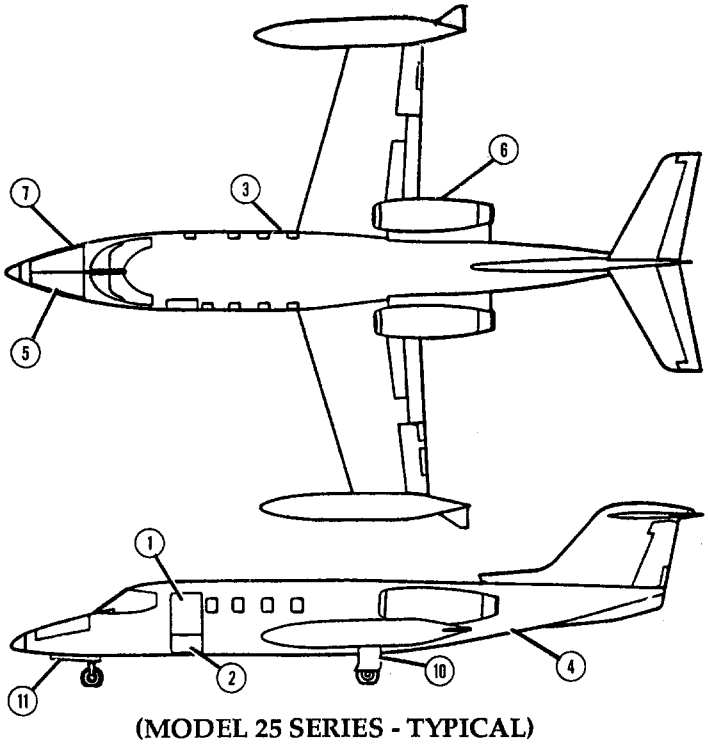


(MODEL 23 SERIES - TYPICAL)

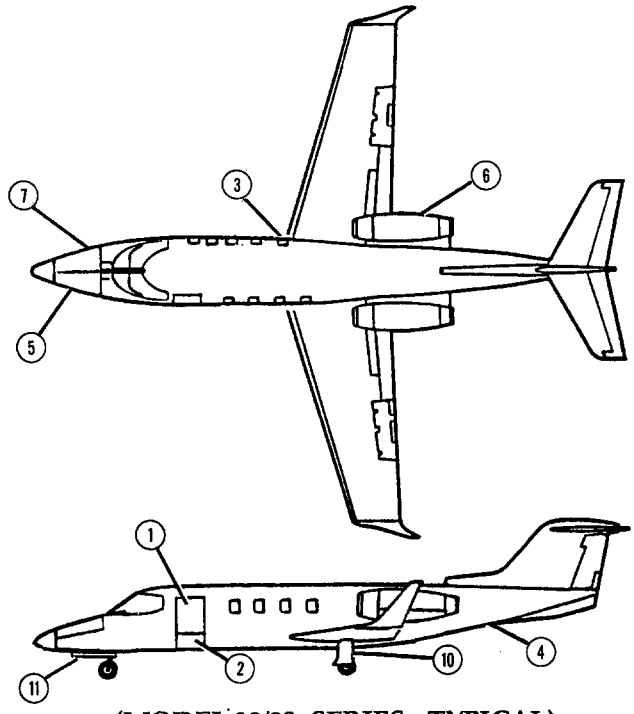


(MODEL 24 SERIES - TYPICAL)

Master Door Repair Index
Figure 1 (Sheet 2 of 4)

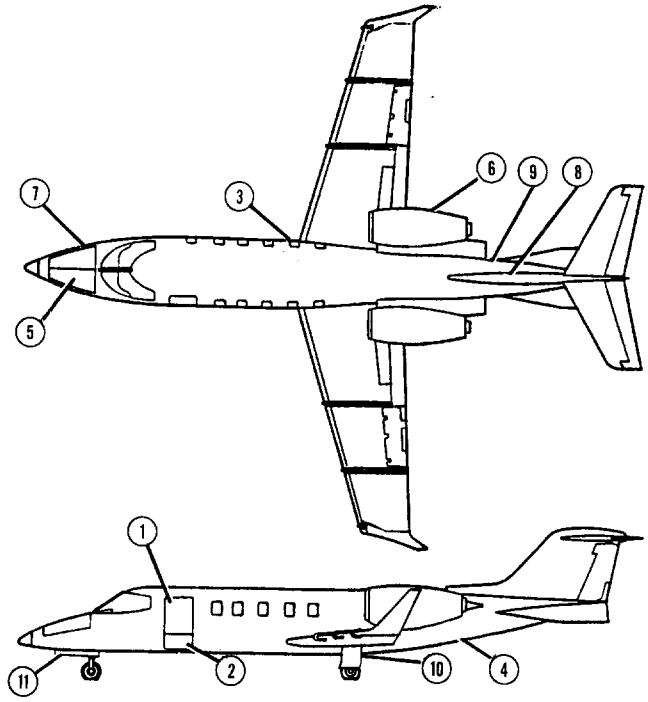


(MODEL 25 SERIES - TYPICAL)

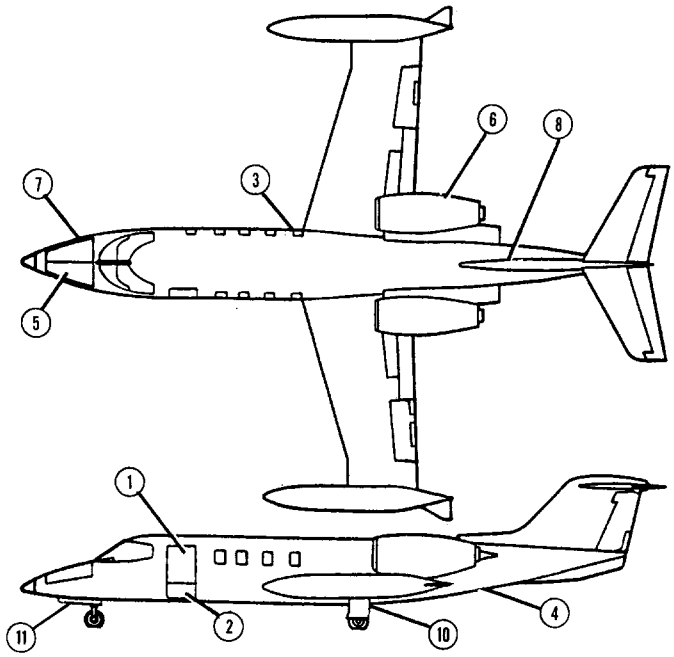


(MODEL 28/29 SERIES - TYPICAL)

Master Door Repair Index
Figure 1 (Sheet 3 of 4)



(MODEL 31 SERIES - TYPICAL)

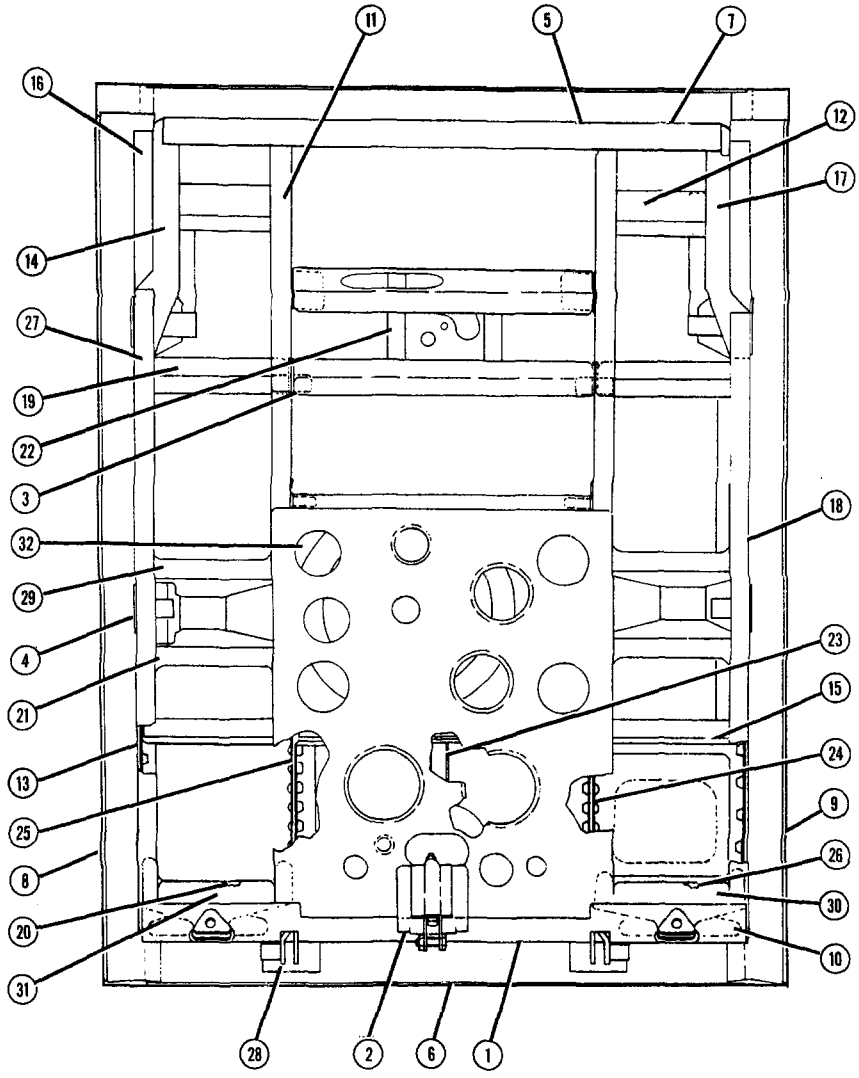


(MODEL 35/36 SERIES - TYPICAL)

Master Door Repair Index
Figure 1 (Sheet 4 of 4)

PASSENGER/CREW UPPER DOOR - STRUCTURAL IDENTIFICATION

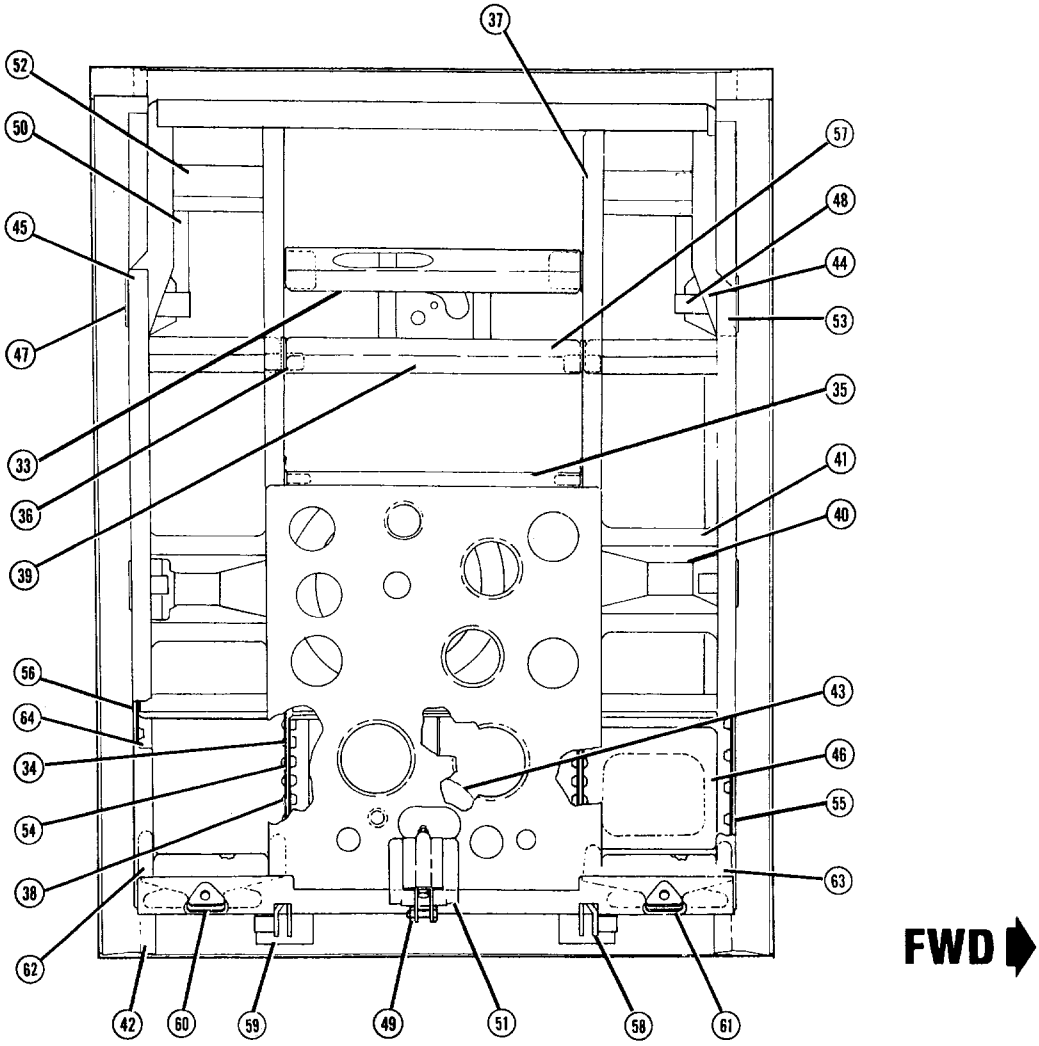
1. DESCRIPTION
   A. The passenger/crew door is located on the left side of the fuselage in the forward passenger compartment. The passenger/crew door can be either a 24-inch executive door or a 36-inch cargo door. The door consists of an upper door assembly that forms a canopy when open, and a lower door assembly with integral entrance steps.



2-202C

Passenger/Crew Upper (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 1 of 6)

PASSENGER/CREW UPPER DOOR - STRUCTURAL IDENTIFICATION



2-202C

Passenger/Crew Upper (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 2 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411495	Passenger/Crew Upper (24 - Inch) Door Assembly	1	–	–	–	–
1	2411496	• Channel	1	2024-T42 Clad	0.050	–	Replace
2	2411496	• Angle	1	2024-T42 Clad	0.050	–	Replace
3	2411496	• Angle	1	2024-T42 Clad	0.050	–	Replace
4	2411496	• Plate	1	2024-T3 Clad	0.063	–	Replace
5	2411496	• Plate	1	2024-T3 Clad	0.100	–	Replace
6	2411496	• Plate	1	2024-T3 Clad	0.100	–	Replace
7	2411496	• Skin	1	2024-T3 Clad	0.040	–	51-70-02
8	2411496	• Door Jamb, Aft	1	S-552	–	–	
9	2411496	• Door Jamb, Fwd	1	S-552	–	–	
10	2411496	• Spacer	2	2024-T3 Clad	0.050	–	Replace
11	2411496	• Frame Assy.	1	–	–	–	–
	2411496	• • Frame	1	2024-T42 Clad	0.050	–	51-70-03
	2411496	• • Doubler	1	4130 Steel [3]	0.050	–	51-70-03
	2411496	• • Clip	1	2024-T42 Clad	0.050	–	Replace
	2411496	• • Stiffener	1	2024-T42 Clad	0.050	–	Replace
12	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
13	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
14	2411496	• Channel Assy.	1	–	–	–	–
	2411496	• • Stiffener	1	2024-T42 Clad	0.040	–	51-70-03
	2411496	• • Channel	1	2024-T42 Clad	0.050	–	51-70-03
15	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
16	2411496	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
17	2411496	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
18	2411496	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
19	2411496	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
20	2411496	• Channel Assy.	1	–	–	–	–
	2411496	• • Channel	1	2024-T42 Clad	0.050	–	Replace
21	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
22	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2411496	• • Plate	1	2024-T3 Clad	0.190	–	Replace
23	2411496	• Angle	2	2024-T42 Clad	0.050	–	Replace
24	2311495	• Angle	3	2024-T42 Clad	0.050	–	Replace
	2411496	• Angle	4	2024-T42 Clad	0.050	–	Replace
25	2311495	• Angle	3	2024-T42 Clad	0.050	–	Replace
	2411496	• Angle	4	2024-T42 Clad	0.050	–	Replace
26	2411496	• Shim, Laminated	4	[2]			
27	2411496	• Plate	4	2024-T3 Clad	0.063	–	Replace

Passenger/Crew Upper (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 3 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
28	2311495	• Striker Plate	3	4130 Steel	0.080	–	Replace
	2411496	• Striker Plate	4	4130 Steel	0.180	–	Replace
29	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
30	2411496	• Plate	1	2024-T42 Clad	0.050	–	Replace
31	2411496	• Plate	1	2024-T42 Clad	0.050	–	Replace
32	2411496	• Cover Assy.	3	–	–	–	–
	2411496	• • Bearing	3	2024-T3 Clad	0.190	–	Replace
	2411496	• • Cover	3	2024-T42 Clad	0.080	–	Replace
	2411496	• Cover Assy.	4	–	–	–	–
	2411496	• • Bearing	4	AL Bronze [6]	–	–	Replace
	2411496	• • Cover	4	2024-T42 Clad	0.080	–	Replace
33	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
34	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
35	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
36	2411496	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
37	2411496	• Frame Assy.	5	–	–	–	–
	2411496	• • Stiffener	5	2024-T42 Clad	0.040	–	Replace
	2411496	• • Doubler	5	4130 Steel [3]	0.050	–	51-70-04
	2411496	• Frame Assy.	6	–	–	–	–
	2411496	• • Frame	6	2024-T42 Clad	0.050	–	Replace
	2411496	• • Doubler	6	4130 Steel [3]	0.050	–	51-70-04
38	2411496	• Support Assy.	5	–	–	–	–
	2411496	• • Bracket	5	2024-T42 Clad	0.050	–	Replace
	2411496	• Support Assy.	6	–	–	–	–
	2411496	• • Plate	6	2024-T3511	0.250	–	Replace
39	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2411496	• • Plate	1	2024-T3 Clad	0.080	–	Replace
40	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2411496	• • Plate	1	2024-T3 Clad	0.100	–	Replace
41	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2411496	• • Plate	1	2024-T3 Clad	0.100	–	Replace
42	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
43	2411496	• Support Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2411496	• • Plate	1	2024-T3 Clad	0.100	–	Replace
44	2411496	• Bracket Assy.	1	–	–	–	–
	2411496	• • Zee	1	4130 Steel [7]	0.050	–	Replace
	2411496	• • Plate	1	4130 Steel [7]	0.050	–	Replace

Passenger/Crew Upper (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 4 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
45	2411496	• Bracket Assy.	1	–	–	–	–
	2411496	• • Zee	1	4130 Steel 7	0.050	–	Replace
	2411496	• • Plate	1	4130 Steel 7	0.050	–	Replace
46	2411491	• Center Pin Guide	1	4139 Steel 7	0.100	–	Replace
47	2411494	• Pin Guide	1	4139 Steel 4	0.100	–	Replace
48	2411494	• Pin Guide	1	4139 Steel 4	0.100	–	Replace
49	2311502	• Clevis	1	2024-T3 Clad	0.040	–	Replace
50	2311502	• Guide	1	2024-T3 Clad	0.040	–	Replace
51	2311502	• Clip	1	2024-T3 Clad	0.040	–	Replace
52	2311495	• Splice Plate	1	2024-T42 Clad	0.050	–	Replace
53	2311495	• Spacer	1	Phenolic 8	0.312	–	Replace
54	2311278	• Hinge Arm	1	4130 Steel 5	0.250	–	Replace
55	2411497	• Guide	1	4130 Steel 4	0.880	–	Replace
56	2411497	• Guide	1	4130 Steel 4	0.880	–	Replace
57	2411496	• Doubler Assy.	1	–	–	–	–
	2411496	• • Bracket (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2411496	• • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2411496	• • Spacer	1	2024-T3 Clad	0.063	–	Replace
58	2411493	• Guide	1	4130 Steel 4	0.190	–	Replace
59	2411493	• Guide	1	4130 Steel 4	0.190	–	Replace
60	2411496	• Support Assy.	5	–	–	–	–
	2411496	• • Bracket (2 ea.)	5	2024-T42 Clad	0.080	–	Replace
	2411472	• Support Assy.	6	–	–	–	–
	2411472	• • Bracket (2 ea.)	6	2024-T42 Clad	0.080	–	Replace
61	2411496	• Support Assy.	5	–	–	–	–
	2411496	• • Bracket (2 ea.)	5	2024-T42 Clad	0.080	–	Replace
	2411472	• Support Assy.	6	–	–	–	–
	2411472	• • Bracket (2 ea.)	6	2024-T42 Clad	0.080	–	Replace
62	2411496	• Support Assy.	5	–	–	–	–
	2411496	• • Bracket (2 ea.)	5	2024-T42 Clad	0.080	–	Replace
	2411472	• Support Assy.	6	–	–	–	–
	2411472	• • Bracket (2 ea.)	6	2024-T42 Clad	0.080	–	Replace
63	2411496	• Support Assy.	5	–	–	–	–
	2411496	• • Bracket (2 ea.)	5	2024-T42 Clad	0.080	–	Replace
	2411472	• Support Assy.	6	–	–	–	–
	2411472	• • Bracket (2 ea.)	6	2024-T42 Clad	0.080	–	Replace
64	2411499	• Inner Skin	1	2024-T3 Clad	0.032	–	51-70-02

Passenger/Crew Upper (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 5 of 6)

CODES	EFFECTIVITIES
1	24-272, 24-295 THRU 24-357; 25-134, 25-168 THRU 25-373; 28-003 THRU 28-005; 29-001 THRU 29-004; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	24-304 THRU 24-357; 25-187 THRU 25-373; 28-003 THRU 28-005; 29-001 THRU 29-004; 35-017 AND SUBSEQUENT; 36-007, 36-009 AND SUBSEQUENT
3	24-272, 24-295 THRU 24-303; 24-309 THRU 24-314; 25-134, 25-168 THRU 25-186; 35-002 THRU 35-016; 36-001 THRU 36-006 AND 36-008
4	24-304 THRU 24-357; 25-187 THRU 25-373; 28-003 THRU 28-005; 29-001 THRU 29-004; 35-017 AND SUBSEQUENT; 36-007, 36-009 AND SUBSEQUENT
5	24-272, 24-295 THRU 24-334; 25-134, 25-168 THRU 25-208; 35-002 THRU 35-084; 36-001 THRU 36-021
6	24-335 THRU 24-357; 25-209 THRU 25-373; 28-003 THRU 28-005; 29-001 THRU 29-004; 35-085 AND SUBSEQUENT; 36-022 AND SUBSEQUENT

NOTES:

1. Shims may be used between stiffeners and door skin and between bracket flanges and door skin, as required, to improve door skin contour. Refer to Approved Repairs for fabrication and usage of shims.

2. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

3. Heat Treat to 125,000 - 140,000 psi.

4. Heat Treat to 125,000 - 145,000 psi.

5. Heat Treat to 180,000 - 200,000 psi.

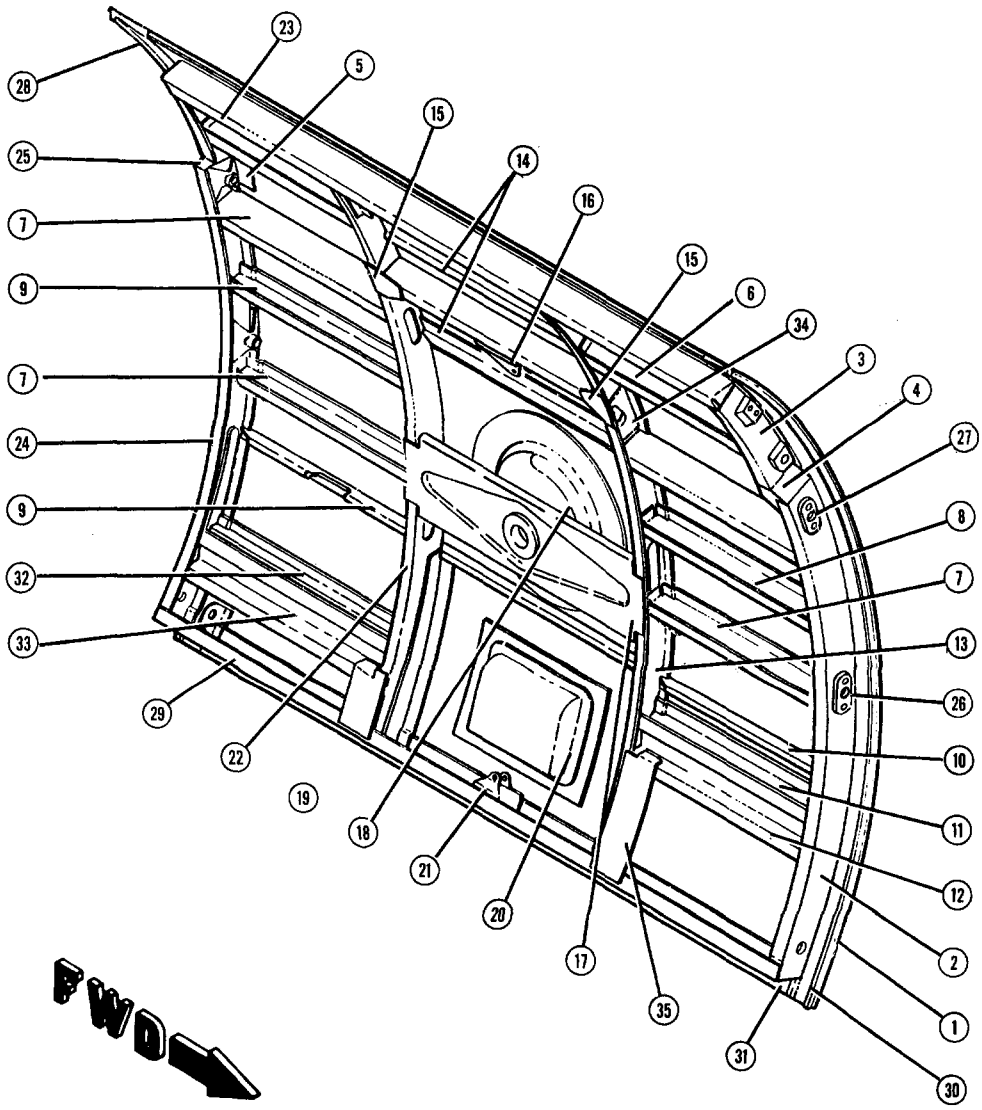
6. Aluminum bronze per AMS4640.

7. Condition Annealed

8. Type FBG per MIL-P-15035.

Passenger/Crew Upper (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 6 of 6)

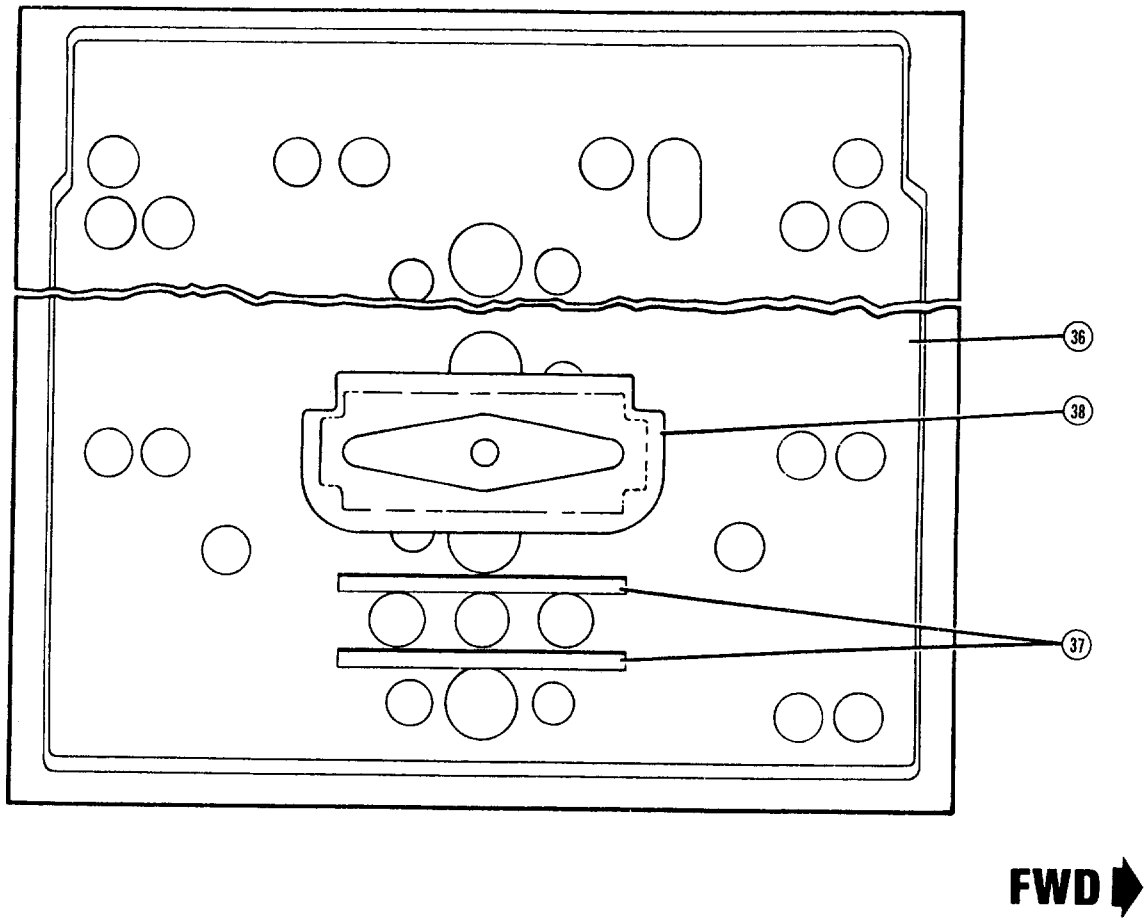
PASSENGER/CREW UPPER DOOR - STRUCTURAL IDENTIFICATION



2-141B-2

Passenger/Crew Upper (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 1 of 5)

PASSENGER/CREW UPPER DOOR - STRUCTURAL IDENTIFICATION



2-141B-1

Passenger/Crew Upper (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311495	Passenger/Crew Upper (36 - Inch) Door Assy.	1	–	–	–	–
1	2311495	• Skin	2	2024-T42 Clad	0.040	–	51-70-02
	2311495	• Skin	3	2024-T42 Clad	0.040	–	51-70-02
2	2311495	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
3	2311495	• Frame	1	2024 Clad	0.050	–	51-70-03
4	2311495	• Splice Plate	4	4130 Steel [1]	0.050	–	Replace
	2311495	• Splice Plate Assy.	5	–	–	–	–
	2311495	• • Splice Plate	5	4130 Steel [1]	0.050	–	Replace
	2311495	• • Angle	5	4130 Steel [1]	0.050	–	Replace
5	2311495	• Splice Plate	1	2024-T42 Clad	0.050	–	Replace
6	2311495	• Stiffener	3	S-554	–	–	Replace
	2311495	• Channel	5	2024-T3 Clad	0.040	–	51-70-03
7	2311495	• Stiffener	1	2024-T42 Clad	0.050	–	51-70-03
8	2311495	• Stiffener	1	S-554	–	–	51-70-04
9	2311495	• Stiffener	1	S-554	–	–	51-70-04
10	2311495	• Stiffener	1	S-554	–	–	51-70-04
11	2311495	• Bracket Assy.	1	–	–	–	–
	2311495	• • Bracket (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
12	2311495	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
13	2311495	• Stiffener	1	S-554		–	51-70-04
14	2311495	• Channel	3	S-554		–	Replace
	2311495	• Channel	5	2024-T3 Clad	0.040	–	Replace
15	2311495	• Gusset	1	2024-T3 Clad	0.050	–	Replace
16	2311495	• Rocker Arm Support	1	2024-T3 Clad	0.050	–	Replace
	2311495	• Rocker Arm Support	6	2024-T3 Clad	0.080	–	Replace
17	2311495	• Support Assy.	1	–	–	–	–
	2311495	• • Disc	1	2024-T3 Clad	0.100	–	Replace
	2311495	• • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2311495	• • Bearing Plate	1	Phenolic [3]	0.375	–	Replace
18	2311495	• Cover Assy.	1	–	–	–	–
	2311495	• • Cover	1	2024-T42 Clad	0.080	–	Replace
	2311495	• • Disc	1	2024-T3 Clad	0.190	–	Replace
19	2311495	• Clip	7	2024-T3 Clad	0.050	–	Replace
20	2311678	• Exterior Handle Instl.	8	–	–	–	-
	2311678	• Pan	8	6061-T6	0.050	–	Replace
	2311678	• End Pan (2 ea.)	8	6061-T6	0.050	–	Replace
	2311678	• Doubler	8	2024-T3 Clad	0.063	–	Replace
21	2311495	• Rocker Arm Support	1	2024-T3 Clad	0.050	–	Replace
22	2311495	• Frame	1	2024-T42 Clad	0.050	–	51-70-03
23	2311495	• Channel	1	2024-T42 Clad	0.050	–	51-70-03
24	2311495	• Frame	1	2024-T42 Clad	0.050	–	51-70-03

Passenger/Crew Upper (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 3 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
25	2311495	• Splice Plate	3	4130 Steel [1]	0.050	–	Replace
	2311495	• Splice Angle Assy.	5	–	–	–	–
	2311495	• • Splice Angle	5	4130 Steel [1]	0.050	–	Replace
	2311495	• • Angle	5	4130 Steel [1]	0.050	–	Replace
26	2311271	• Guide Pin Assy.	1	–	–	–	–
	2311271	• • Cover	1	2024-T42 Clad	0.080	–	Replace
	2311271	• • Disc	1	2024-T3 Clad	0.190	–	Replace
	2311495	• Bracket	1	2024-T3 Clad	0.050	–	Replace
	2311495	• Stiffener	1	2024-T3 Clad	0.050	–	Replace
27	2311271	• Plate, Fwd & Aft Upper	1	4130 Steel [2]	0.100	–	Replace
	2311495	• Bracket	1	2024-T3 Clad	0.050	–	Replace
28	2311495	• Frame	1	2024-T3 Clad	0.050	–	Replace
29	2311495	• Lower Channel	3	2024-T42 Clad	0.050	–	Replace
30	2311495	• Forward Door Jamb	1	S-552			Replace
	2311495	• Aft Door Jamb	1	S-552			Replace
31	2311495	• Lower Edge Plate	1	2024-T3 Clad	0.100	–	Replace
32	2311495	• Bracket	1	2024-T3 Clad	0.063	–	Replace
33	2311495	• Bracket	1	2024-T42 Clad	0.050	–	Replace
34	2311495	• Doubler	9	301 Stainless [4]	0.040	–	Replace
35	2311502	• Clevis Pin Bracket Assy.	10	2024-T3 Clad	0.063	–	Replace
	2311502	• • Clip	10	2024-T3 Clad	0.040	–	Replace
	2311502	• • Clevis	10	4130 Steel	–	–	Replace
	2311502	• • Guide	10	4130 Steel	–	–	Replace
36	2311499	• Inner Skin	1	2024-T42 Clad	0.032	–	51-70-02
37	2311499	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
38	2311499	• Cover	1	2024-T3 Clad	0.032	–	Replace

Passenger/Crew Upper (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	23-003 THRU 23-008
3	23-009 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	23-002 THRU 23-090; 24-100 THRU 24-169; 25-002 THRU 25-010
5	24-170 THRU 24-357; 25-011 THRU 25-061, 25-067 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
6	24-344 THRU 24-357; 25-219 THRU 25-373; 35-101 AND SUBSEQUENT; 36-030 AND SUBSEQUENT
7	24-327 THRU 24-357; 25-002 THRU 25-373; 35-059 AND SUBSEQUENT; 36-018 AND SUBSEQUENT
8	23-014 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
9	23-060 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
10	24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

NOTES:

1. Condition Annealed.
2. Heat Treat to 125,000 - 145,000 psi.
3. Type FBG per MIL-P-15035.
4. Condition 1/2 Hard.

Passenger/Crew Upper (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 5 of 5)

PASSENGER/CREW UPPER DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the primary door assembly structure or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

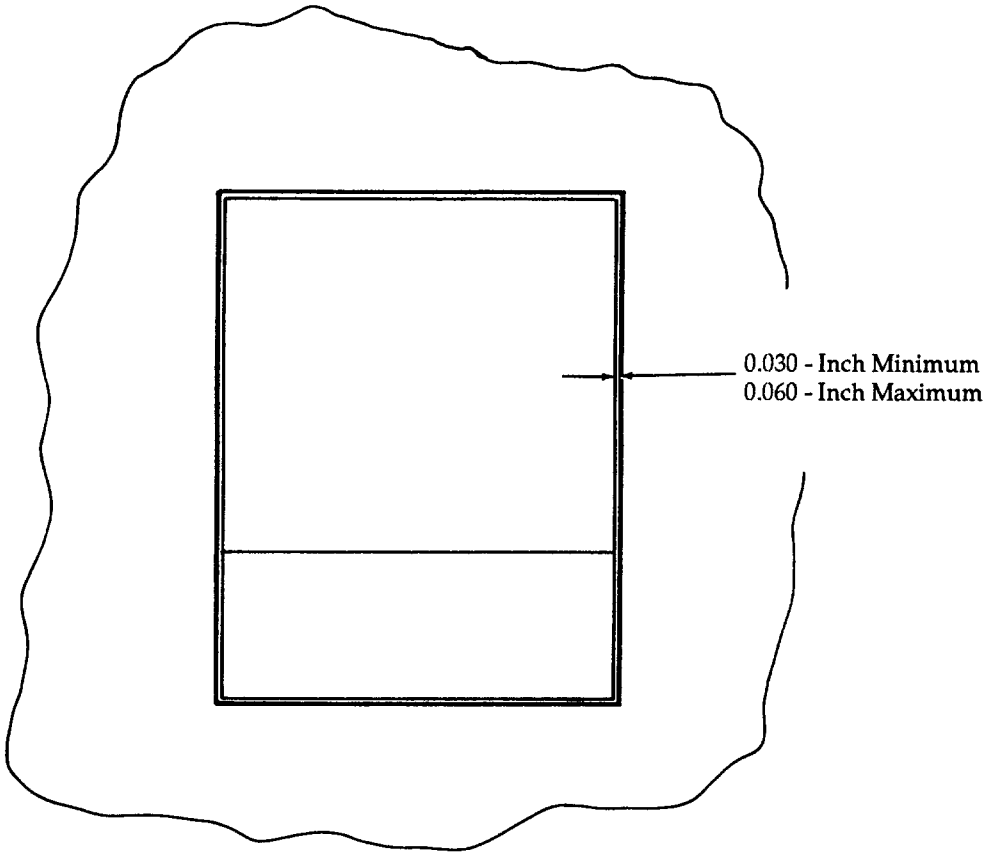
Allowable Material Thickness
Figure 101

PASSENGER/CREW UPPER DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the passenger/crew upper door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for door components such as door seals, door latch mechanism, door hook mechanism, and torsion bar assembly.
C. Skin gap tolerance between the passenger/crew door skin and fuselage skin is 0.030-inch (0.762 mm) minimum to 0.060-inch (1.524 mm) maximum around perimeter of door (see Figure 201).



(TYPICAL FOR 24 - INCH OR 36 - INCH DOOR)

2-146A

Door Skin Gap Tolerances
Figure 201

CONDITION

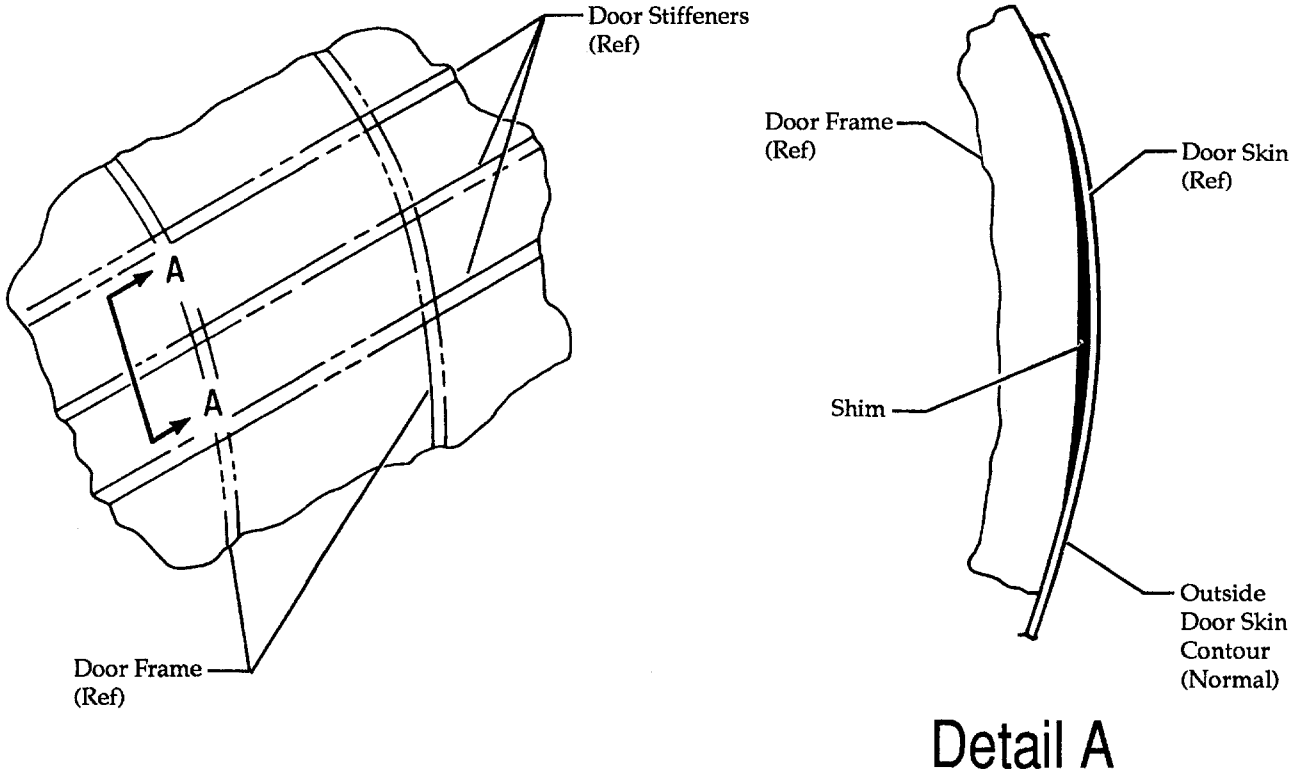
1. Out-of-Contour condition can exists when door skin is secured in place and door is dented.

LIMITATIONS

1. Out-of-Contour area may not exceed 12.0 inches (304 mm) in length by 0.080 inch (2.03 mm) in depth. Maximum thickness of shim may not exceed 0.063 inch (1.6 mm).
2. Dents may or may not cause deformation of the door substructure which affects the structural integrity of the door.

REPAIR

1. Determine length and depth of area to be shimed.
2. Fabricate a shim of proper length, thickness and taper, from 2024-T3 aluminum sheet.
3. Apply one (1) coat epoxy primer to shim.
4. Apply faying surface seal to both sides of shim. (Refer to Chapter 51.)
5. Slide shim into place.
6. Drill proper size holes from skin side through shim.
7. Install MS20426AD fasteners.
8. Paint affected areas.

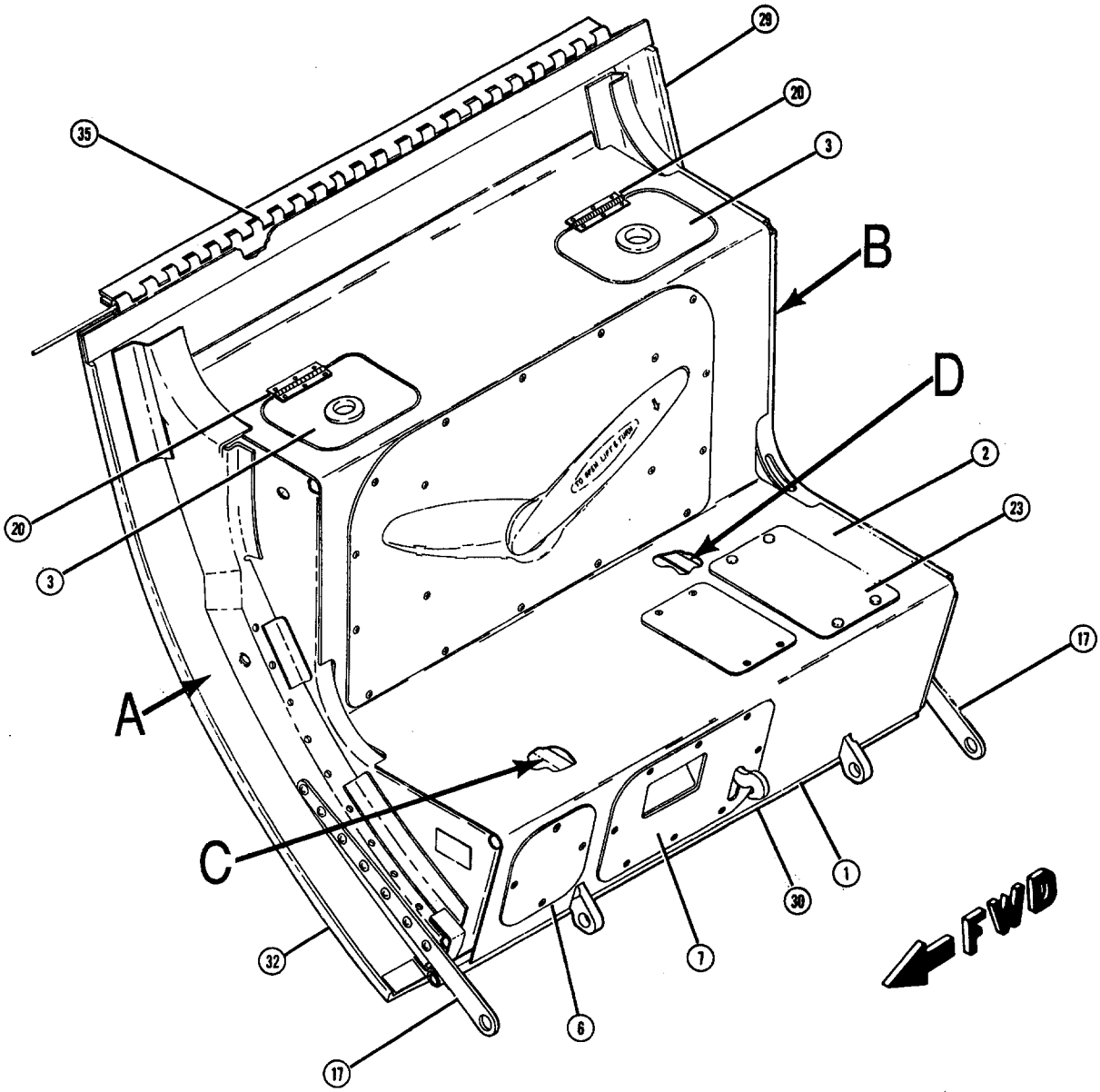


2-153A

Out-of-Contour Upper Door Skin Repair
Figure 202

PASSENGER/CREW LOWER DOOR - STRUCTURAL IDENTIFICATION

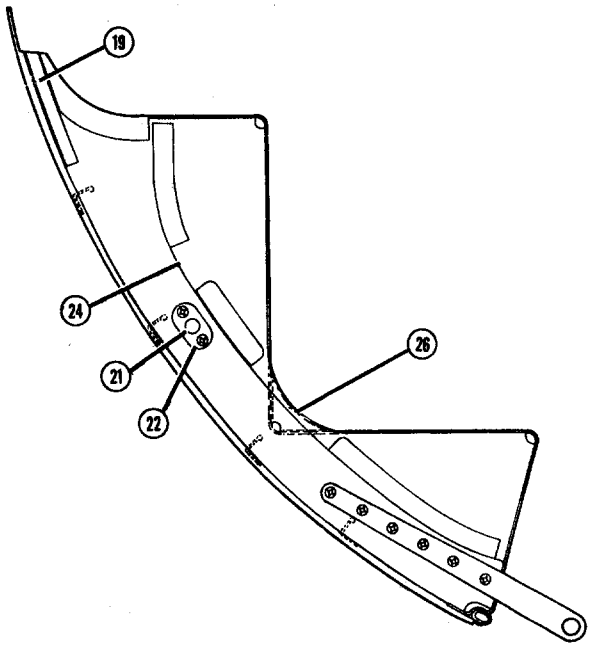
1. DESCRIPTION
   A. The passenger/crew door is located on the left side of the fuselage in the forward passenger compartment. The passenger/crew door can be either a 24-inch executive door or a 36-inch cargo door. The door consists of an upper assembly that forms a canopy when open, and a lower door assembly with integral entrance steps.



2-200C

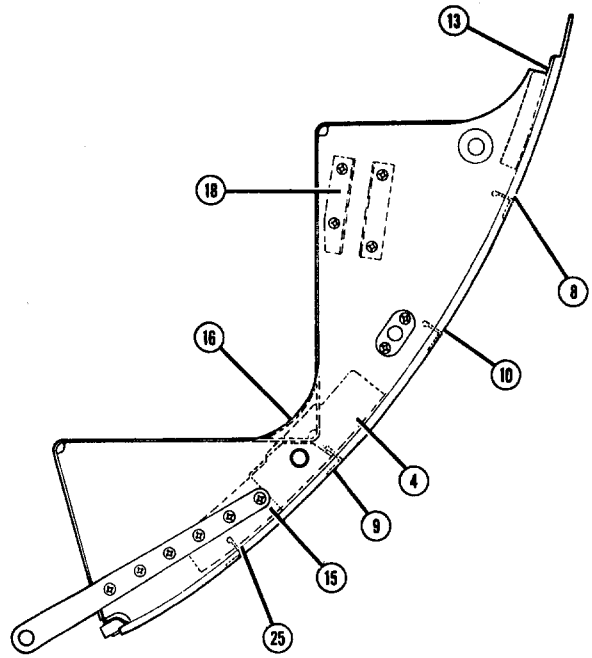
Passenger/Crew Lower (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 1 of 4)

PASSENGER/CREW LOWER DOOR - STRUCTURAL IDENTIFICATION



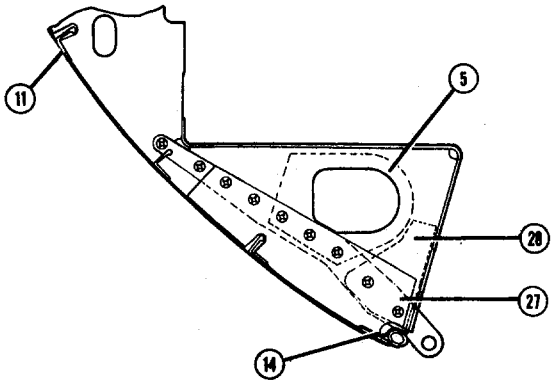
(FWD END - LOOKING AFT)

Detail A



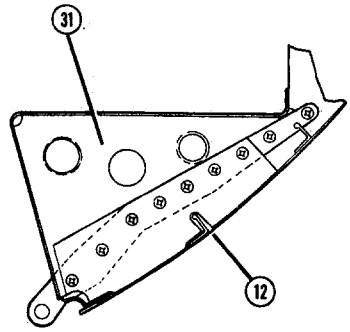
(AFT END - LOOKING FWD)

Detail B



(VIEW LOOKING AFT)

Detail C



(VIEW LOOKING FWD)

Detail D

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411250	Passenger/Crew Lower (24 - Inch) Door Assy.	1	–	–	–	–
1	2411250	• Skin, Outer	1	2024-T42 Clad	0.040	1	51-70-02
2	2411250	• Skin, Inner	1	2024-T3 Clad	0.080	F4-6	51-70-02
	2411250	• Shim, Laminated (Max. 0.032)	1	2	–	–	Replace
	2511271	• Angle (3 ea.)	1	2024-T42 Clad	0.050	F4-6	Replace
	2511271	• Clip	1	2024-T42 Clad	0.050	F4-6	Replace
3	2511271	• Cover (2 ea.)	1	2024-T3 Clad	0.063	F4-6	Replace
4	2511271	• Bracket	1	4130 Steel 3	0.063	–	Replace
5	2511271	• Doubler	1	2024-T3 Clad	0.050	F4-6	Replace
6	2511271	• Cover	1	2024-T3 Clad	0.032	F4-6	Replace
	2511271	• Cover Assy.	1	–	–	–	–
7	2511271	• • Cover	1	2024-T3 Clad	0.032	F4-6	Replace
8	2511271	• Stiffener	1	S-554	–	F4-6	Replace
9	2511271	• Stiffener	1	S-554	–	F4-6	Replace
10	2511271	• Stiffener	1	S-554	–	F4-6	Replace
11	2511271	• Stiffener	1	S-554	–	F4-6	Replace
12	2511271	• Stiffener	1	S-554	–	F4-6	Replace
13	2511271	• Strap	1	2024-T42 Clad	0.063	F4-6	Replace
14	2511271	• Seal Retainer	1	2024-T42 Clad	0.050	F4-6	Replace
15	2311216	• Doubler	1	2024-T3 Clad	0.063	F4-6	Replace
	2311216	• Spacer	1	2024-T3 Clad	0.100	F4-6	Replace
16	2311216	• Bracket	1	2024-T3 Clad	0.032	F4-6	Replace
17	2311273	• Latch Arm	1	4130 Steel 4	0.125	–	Replace
18	2311666	• Angle (2 ea.)	1	2024-T42 Clad	0.063	F4-6	Replace
19	2411276	• Angle (2 ea.)	1	2024-T42 Clad	0.050	F4-6	Replace
	2411276	• Clip (2 ea.)	1	2024-T42 Clad	0.050	F4-6	Replace
	2411276	• Spring	1	Music wire	0.042	–	Replace
20	2411276	• Hinge	1	MS35821-2A	–	–	Replace
21	2511297	• Fitting	2	4130 Steel 5	–	–	Replace
22	2511297	• Plate	2	4130 Steel 6	–	–	Replace
23	2411276	• Cover	1	2024-T3 Clad	0.050	F4-6	Replace
24	2511271	• Frame	1	2024-T42 Clad	0.050	F4-6	51-70-04
25	2511271	• Stiffener	1	S-554	–	F4-6	Replace
26	2511271	• Frame	3	2024-T42 Clad	0.050	F4-6	51-70-04
	2411232	• Frame	4	2024-T42 Clad	0.050	F4-6	51-70-04
27	2511271	• Support	3	2024-T42 Clad	0.050	F4-6	Replace
	2411230	• Support	4	2024-T42 Clad	0.050	F4-6	Replace
28	2511271	• Frame	3	2024-T42 Clad	0.050	F4-6	51-70-04
	2411231	• Frame	4	2024-T42 Clad	0.050	F4-6	51-70-04
29	2511271	• Support	3	2024-T42 Clad	0.050	F4-6	Replace
	2411230	• Support	4	2024-T42 Clad	0.050	F4-6	Replace
	2411233	• Angle (2 ea.)	4	2024-T3 Clad	0.063	F4-6	Replace

Passenger/Crew Lower (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 3 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
30	2511271	• Doubler	1	2024-T3 Clad	0.050	F4-6	Replace
31	2511271	• Door Jamb	1	S-552	–	F4-6	Replace
	2511271	• Bracket Assy.	1	–	–	–	–
32	2511271	• • Bracket	1	2024-T42 Clad	0.063	F4-6	Replace
	2511271	• • Plate	1	2024-T3 Clad	0.100	F4-6	Replace
33	2511271	• Frame	3	2024-T42 Clad	0.050	F4-6	51-70-04
	2511271	• Frame	4	2024-T42 Clad	0.050	F4-6	51-70-04
34	2511271	• Door Jamb	1	S-552	–	F4-6	Replace
	2511271	• Filler	1	2024-T42 Clad	0.100	F4-6	Replace
	2511271	• Filler	5	2024T3 Clad	0.160	F4-6	Replace
35	2511282	Hinge Assy., Lower Door	1	–	–	–	Replace
	2511282	• Hinge (2 ea.)	1	7	–	–	Replace
	2511282	• Hinge Pin	1	8	–	F17-5	Replace

CODES	EFFECTIVITIES
1	24-272, 24-295 THRU 24-357; 25-134, 25-168 THRU 25-373; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	24-272, 24-295 THRU 24-314; 25-134, 25-168 THRU 25-189; 35-002 THRU 35-020; 36-001 THRU 36-013
3	24-272, 24-295 THRU 24-357; 25-134, 25-168 THRU 25-336; 35-002 THRU 35-392; 36-001 THRU 36-047
4	25-337 AND SUBSEQUENT; 35-393 AND SUBSEQUENT; 36-048 AND SUBSEQUENT
5	24-350 THRU 24-357; 25-227 THRU 25-373; 35-117 AND SUBSEQUENT; 36-033 AND SUBSEQUENT

NOTES:

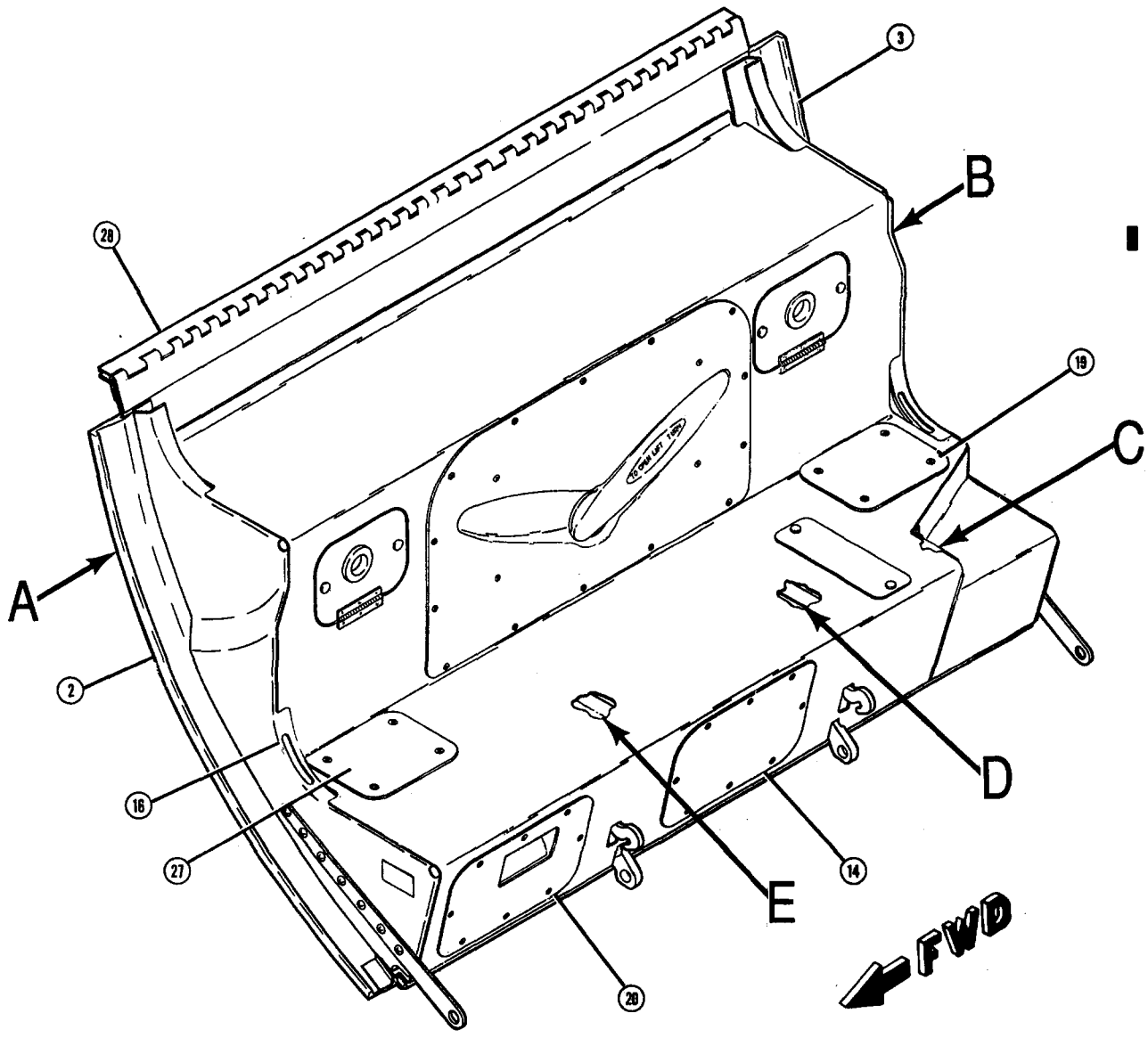
1. F4-6 Interior, F4 Exterior.
2. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.
3. Condition Annealed.
4. Heat Treat to 150,000 - 180,000 psi.
5. Heat Treat to 125,000 - 150,000 psi.
6. Heat Treat to 125,000 - 145,000 psi.
7. Made from A151 321 or 347.
8. Made from MS20253-5 pin.

Passenger/Crew Lower (24 - Inch) Door Structure Repair Index
Figure 1 (Sheet 4 of 4)

PASSENGER/CREW LOWER DOOR - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

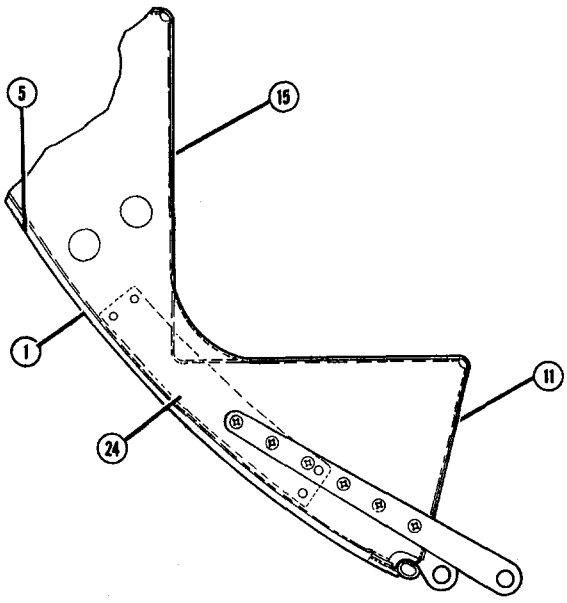
A. The passenger/crew door is located on the left side of the fuselage in the forward passenger compartment. The passenger/crew door can be either a 24-inch executive door or a 36-inch cargo door. The door consists of an upper assembly that forms a canopy when open, and a lower door assembly with integral entrance steps.



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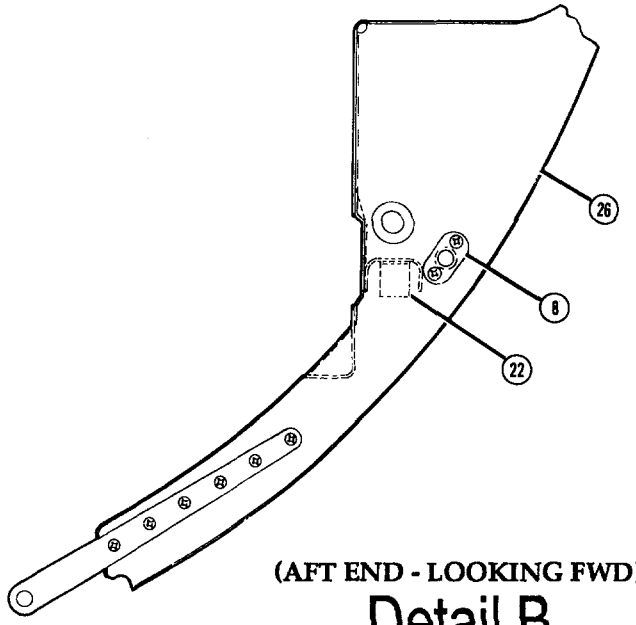
Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 1 of 8)

PASSENGER/CREW LOWER DOOR - STRUCTURAL IDENTIFICATION



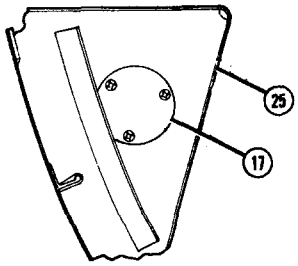
(FWD END - LOOKING AFT)

Detail A



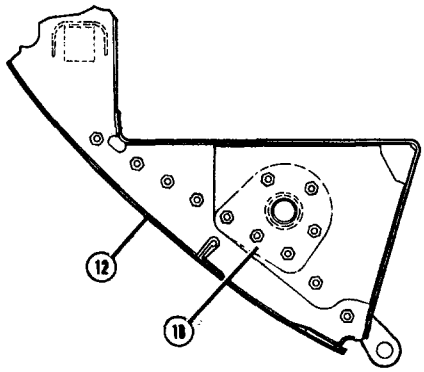
(AFT END - LOOKING FWD)

Detail B



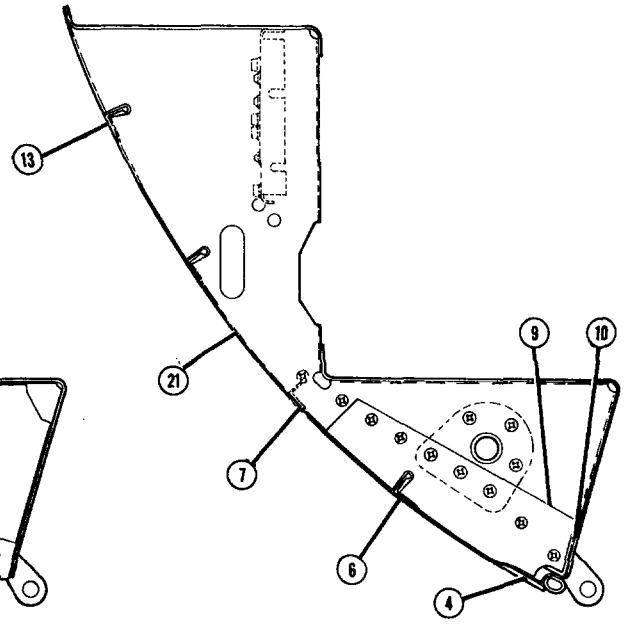
(VIEW LOOKING FWD)

Detail C



(VIEW LOOKING AFT)

Detail D



(VIEW LOOKING AFT)

Detail E

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Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 2 of 8)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311270	Passenger/Crew Lower (36 - Inch) Door Assy	1	–	–	–	–
1	2311275	• Skin, Outer	1	2024-T42 Clad	0.040	–	51-70-02
2	2311275	• Door Jamb, Fwd	1	S-552	–	–	Replace
3	2311275	• Door Jamb, Aft	1	S-552	–	–	Replace
4	2311275	• Filler (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
5	2311275	• Filler	1	2024-T3 Clad	0.160	–	Replace
6	2311275	• Stiffener (2 ea.)	1	S-554	–	–	Replace
7	2311275	• Stiffener	1	S-554	–	–	Replace
8	2311271	• Guide, Pin	1	4130 Steel ▷2◁	0.100	–	Replace
	2311271	• Plate	1	4130 Steel ▷2◁	0.100	–	Replace
9	2311275	• Support, Fwd	1	2024-T42 Clad	0.050	–	51-70-04
10	2311275	• Support, Aft	1	2024-T42 Clad	0.050	–	51-70-04
11	2311275	• End Frame, Fwd	1	2024-T42 Clad	0.050	–	51-70-04
12	2311275	• Frame (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311275	• Plate	1	2024-T3 Clad	0.050	–	Replace
	2311275	• Clip	1	2024-T3 Clad	0.050	–	Replace
13	2311275	• Stiffener	1	S-554	–	–	Replace
14	2311275	• Cover	1	2024-T3 Clad	0.032	–	Replace
	2311275	• Plate	1	2024-T3 Clad	0.125	–	Replace
15	2311275	• Skin, Inner	1	2024-T3 Clad	0.080	–	Replace
16	2311275	• Doubler	1	2024-T3 Clad	0.050	–	Replace
	2311275	• Plate	1	2024-T3 Clad	0.025	–	Replace
	2311275	• Pan, Seat Rail	1	2024-T42 Clad	0.080	–	Replace
17	2311275	• Cover	1	2024-T3 Clad	0.032	–	Replace
	2311275	• Angle	1	2024-T42 Clad	0.050	–	Replace
	2311275	• Frame	2	2024-T42 Clad	0.050	–	Replace
	2311275	• Seat Rail	3	S-537	–	–	Replace
	2311275	• Switch Bracket	1	2024-T42 Clad	0.050	–	Replace
18	2311275	• Gusset (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311275	• Clip	1	2024-T42 Clad	0.050	–	Replace
	2311275	• Clip	1	2024-T42 Clad	0.050	–	Replace
19	2311275	• Cover	1	2024-T3 Clad	0.063	–	Replace
	2311275	• Cover Assy.	1	–	–	–	–
20	2311275	• • Cover	1	2024-T3 Clad	0.032	–	Replace
	2311275	• Shim, Laminated (Max. 0.032)	4	▷1◁	–	–	Replace
	2311275	• Plate	1	2024-T3 Clad	0.080	–	Replace
21	2311275	• Stiffener (2 ea.)	1	S-554	–	–	Replace
22	2311275	• Channel	1	2024-T3 Clad	0.080	–	Replace

Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 3 of 8)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
23	2311661	• Bracket	1	2024-T42 Clad	0.063	–	Replace
	2311663	• Pulley Support	1	2024-T42 Clad	0.050	–	Replace
	2311664	• Clip	1	2024-T42 Clad	0.063	–	Replace
	2311666	• Angle (4 ea.)	1	2024-T3 Clad	0.063	–	Replace
24	2311673	• Doubler	1	2024-T3 Clad	0.063	–	Replace
	2311663	• Pulley Support	1	2024-T42 Clad	0.050	–	Replace
25	2311275	• Frame	1	2024-T42 Clad	0.050	–	Replace
	2311275	• Plate	1	2024-T3 Clad	0.063	–	Replace
	2311275	• Angle (2 ea.)	5	2024-T42 Clad	0.050	–	Replace
26	2311501	• End Frame, Aft	1	2024-T42 Clad	0.050	–	Replace
	2311275	• Hinge	1	MS35821-2A	–	–	Replace
	2311275	• Spring	1	Music Wire	0.042	–	Replace
27	2311275	• Cover	1	2024-T3 Clad	0.063	–	Replace
28	2411282	Hinge Assy., Lower Door	1	–	–	–	Replace
	2411282	• Hinge (2 ea.)	1	3	–	F17-6	Replace
	2411282	• Hinge Pin	1	4	–	F17-5	Replace

CODES **EFFECTIVITIES**

1	23-002 THRU 23-099; 24-100 THRU 24-229; 25-002 THRU 25-060
2	23-035 THRU 23-039
3	23-002 THRU 23-008
4	23-009 THRU 23-099; 24-100 THRU 24-229; 25-002 THRU 25-060
5	23-003 THRU 23-099; 24-100 THRU 24-229; 25-002 THRU 25-060
6	24-140 THRU 24-229; 25-002 THRU 25-060

NOTES:

1. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

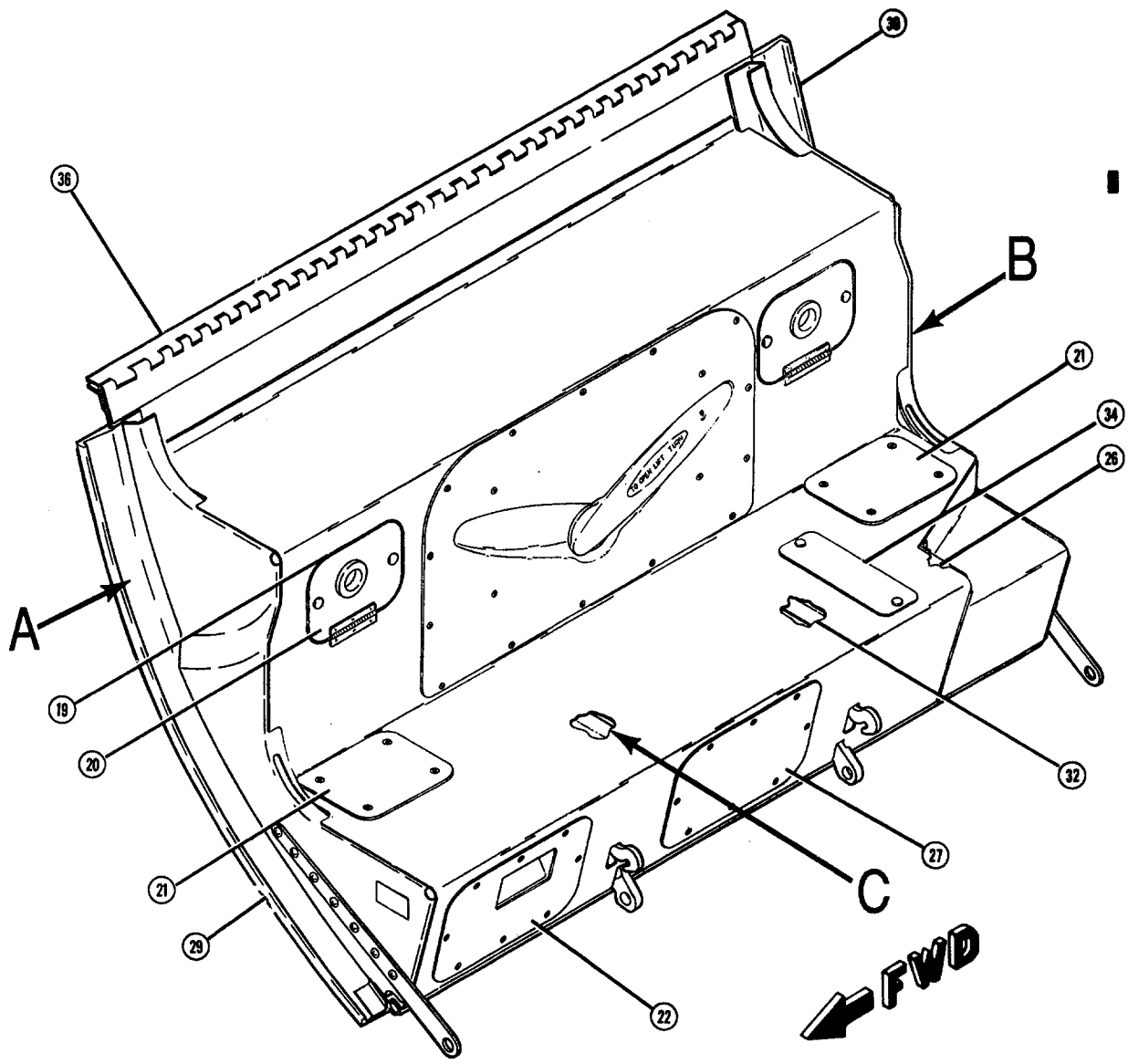
2. Heat Treat to 125,000 - 145,000 psi.

3. Made from A151 321 or 347.

4. Made from MS20253-5 pin.

Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 4 of 8)

PASSENGER/CREW LOWER DOOR - STRUCTURAL IDENTIFICATION

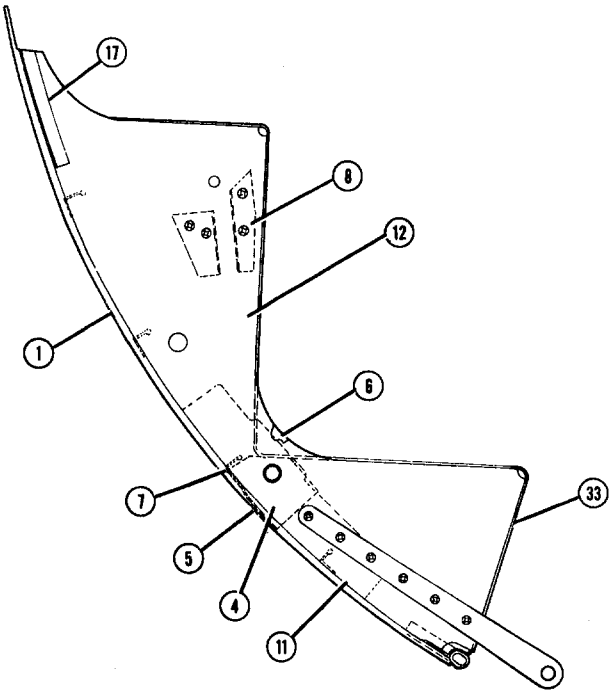


(Aircraft 24-320 thru 24-357; 25-261 thru 25-373; 28-001 thru 28-005; 29-001 thru 29-004; 31-002 and Subsequent; 35-002 and Subsequent; 36-001 and Subsequent, equipped with 36 - Inch Passenger/Crew Door)

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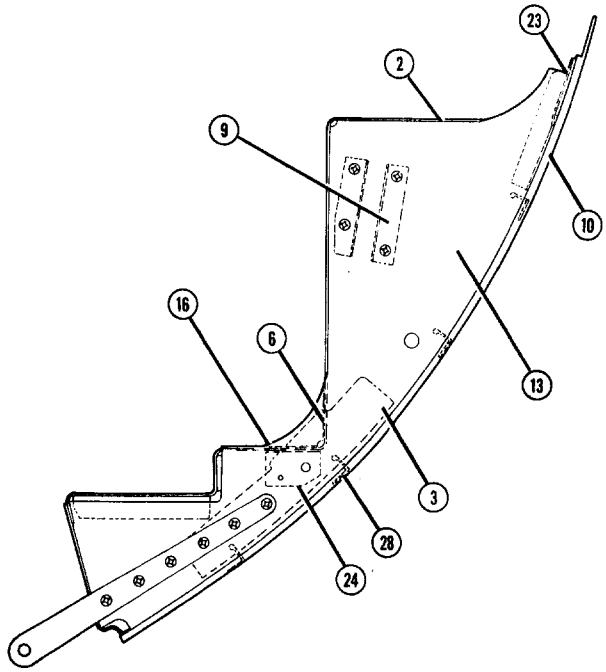
Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 5 of 8)

PASSENGER/CREW LOWER DOOR - STRUCTURAL IDENTIFICATION



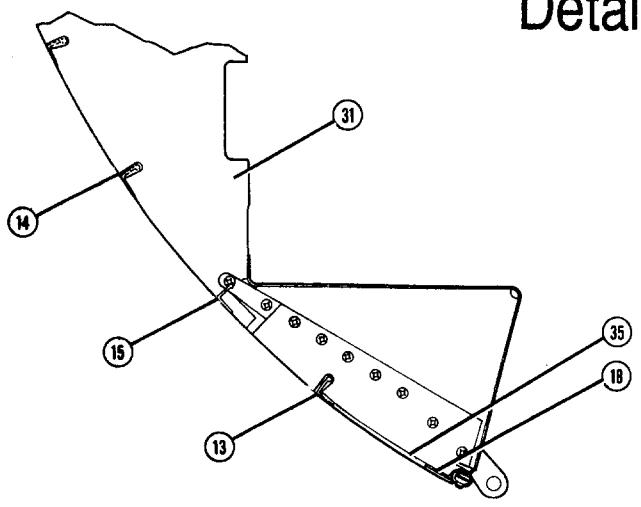
(FWD END - LOOKING AFT)

Detail A



(AFT END - LOOKING FWD)

Detail B



(VIEW LOOKING FWD)

Detail C

(Aircraft 24-320 thru 24-357; 25-261 thru 25-373; 28-001 thru 28-005; 29-001 thru 29-004.; 31-002 and Subsequent; 35-002 and Subsequent; 36-001 and Subsequent, equipped with 36 - Inch Passenger/Crew Door)

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Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 6 of 8)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411234	Passenger/Crew Lower (36 - Inch) Door Assy.	1	–	–	–	–
1	2411234	• Skin, Outer	1	2024-T42 Clad	0.040	–	51-70-02
2	2411234	• Skin, Inner	1	2024-T3 Clad	0.080	–	51-70-02
3	2311216	• Doubler	1	2024-T3 Clad	0.063	–	Replace
4	2311216	• Bracket	2	4130 Stainless [1]	–	–	Replace
5	2311216	• Spacer	1	2024-T3 Clad	0.100	–	Replace
6	2311216	• Bracket	1	2024-T3 Clad	0.032	–	Replace
	2311661	• Bracket Assy.	1	–	–	–	–
7	2311661	• • Bracket	1	2024-T42 Clad	0.063	–	Replace
8	2311666	• Angle (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
9	2311666	• Angle (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
10	2411273	• Frame, Aft	1	2024-T42 Clad	0.050	–	51-70-04
	2411274	• Actuator Support Assy.	1	–	–	–	–
11	2411274	• • Gusset (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
12	2411277	• Frame, Fwd	1	2024-T42 Clad	0.050	–	51-70-04
13	2411276	• Stiffener (2 ea.)	1	S-554	–	–	Replace
14	2411276	• Stiffener	1	S-554	–	–	Replace
15	2411276	• Stiffener (2 ea.)	1	S-554	–	–	Replace
	2411276	• Seal Retainer	1	2024-T42 Clad	0.050	–	Replace
16	2411276	• Filler	1	2024-T42 Clad	0.050	–	Replace
17	2411276	• Angle (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
18	2411276	• Filler (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
19	2411276	• Doubler	1	2024-T3 Clad	0.050	–	Replace
20	2411276	• Cover	1	2024-T3 Clad	0.063	–	Replace
21	2411276	• Cover	1	2024-T3 Clad	0.063	–	Replace
	2411276	• Cover	1	2024-T3 Clad	0.032	–	Replace
22	2411276	• Cover Assy.	1	–	–	–	–
	2411276	• • Cover	1	2024-T3 Clad	0.032	–	Replace
	2411276	• • Recess Handle	1	6061-T6	–	–	Replace
	2411276	• Clip, Fwd	1	2024-T42 Clad	0.050	–	Replace
	2411276	• Clip, Aft	1	2024-T42 Clad	0.050	–	Replace
	2411276	• Hinge Assy.	1	–	–	–	–
	2411276	• • Hinge	1	MS35821-2A	–	–	Replace
	2411276	• • Spring	1	Music Wire	0.042	–	Replace
23	2411276	• Plate	1	2024-T3 Clad	0.063	–	Replace
24	2411276	• Angle	1	S-606	–	–	Replace
	2411276	• Clip (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
25	2411276	• Support	1	2024-T42 Clad	0.080	–	Replace
	2411276	• Clip (2 ea.)	1	2024-T3 Clad	0.050	–	Replace

(Aircraft 24-320 thru 24-357; 25-261 thru 25-373; 28-001 thru 28-005; 29-001 thru 29-004,; 31-002 and Subsequent; 35-002 and Subsequent; 36-001 and Subsequent, equipped with 36 - Inch Passenger/Crew Door)

Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 7 of 8)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
26	2411276	• Frame	1	2024-T3 Clad	0.050	–	Replace
27	2411276	• Cover	1	2024-T3 Clad	0.050	–	Replace
28	2411276	• Stiffener	1	S-554	–	–	Replace
29	2411276	• Door Jamb, Fwd	1	S-552	–	–	Replace
30	2411276	• Door Jamb, Aft	1	S-552	–	–	Replace
31	2411276	• Frame	1	2024-T42 Clad	0.050	–	Replace
32	2411276	• Frame	1	2024-T42 Clad	0.050	–	Replace
33	2411276	• Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
34	2411276	• Cover	1	2024-T3 Clad	0.050	–	Replace
35	2411276	• Filler (2 ea.)	1	2024-T3 Clad	0.160	–	Replace
36	2411282	Hinge Assy., Lower Door	1	–	–	–	Replace
	2411282	• Hinge Half (2 ea.)	1	▷2◁	–	F17-6	Replace
	2411282	• Hinge Pin	1	▷3◁	–	F17-5	Replace

CODES **EFFECTIVITIES**

1 24-230 THRU 24-357; 25-061 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

2 31-030 AND SUBSEQUENT; 35-664 AND SUBSEQUENT; 36-064 AND SUBSEQUENT

NOTES:

▷1◁ Condition Annealed.

▷2◁ Made from A151 321 or 347.

▷3◁ Made from MS20253-5 pin.

(Aircraft 24-320 thru 24-357; 25-261 thru 25-373; 28-001 thru 28-005; 29-001 thru 29-004; 31-002 and Subsequent; 35-002 and Subsequent; 36-001 and Subsequent, equipped with 36 - Inch Passenger/Crew Door)

Passenger/Crew Lower (36 - Inch) Door Structure Repair Index
Figure 2 (Sheet 8 of 8)

PASSENGER/CREW LOWER DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the primary door assembly structure or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

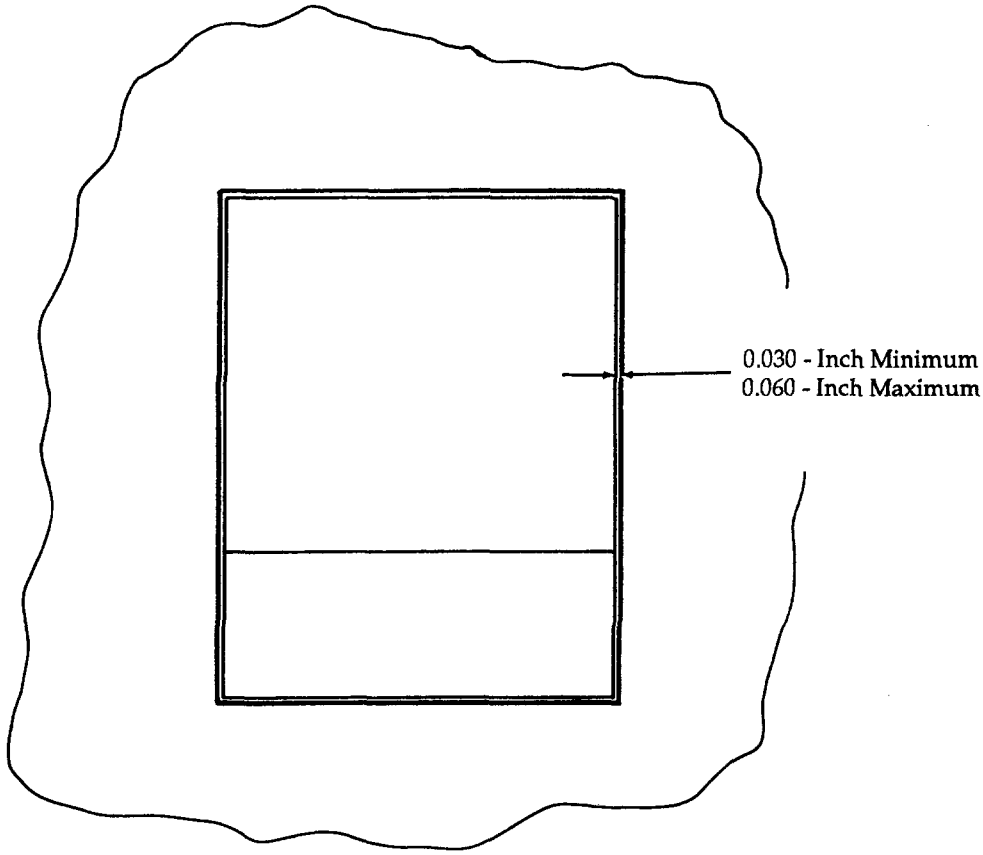
Allowable Material Thickness
Figure 101

PASSENGER/CREW LOWER DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the passenger/crew lower door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for door components such as door seals, door latch mechanism, door hook mechanism, and torsion bar assembly.
C. Skin gap tolerance between the passenger/crew door skin and fuselage skin is 0.030-inch (0.762 mm) minimum to 0.060-inch (1.524 mm) maximum around perimeter of door (see Figure 201).



(TYPICAL FOR 24 - INCH OR 36 - INCH DOOR)

2-146A

Door Skin Gap Tolerance
Figure 201

CONDITION

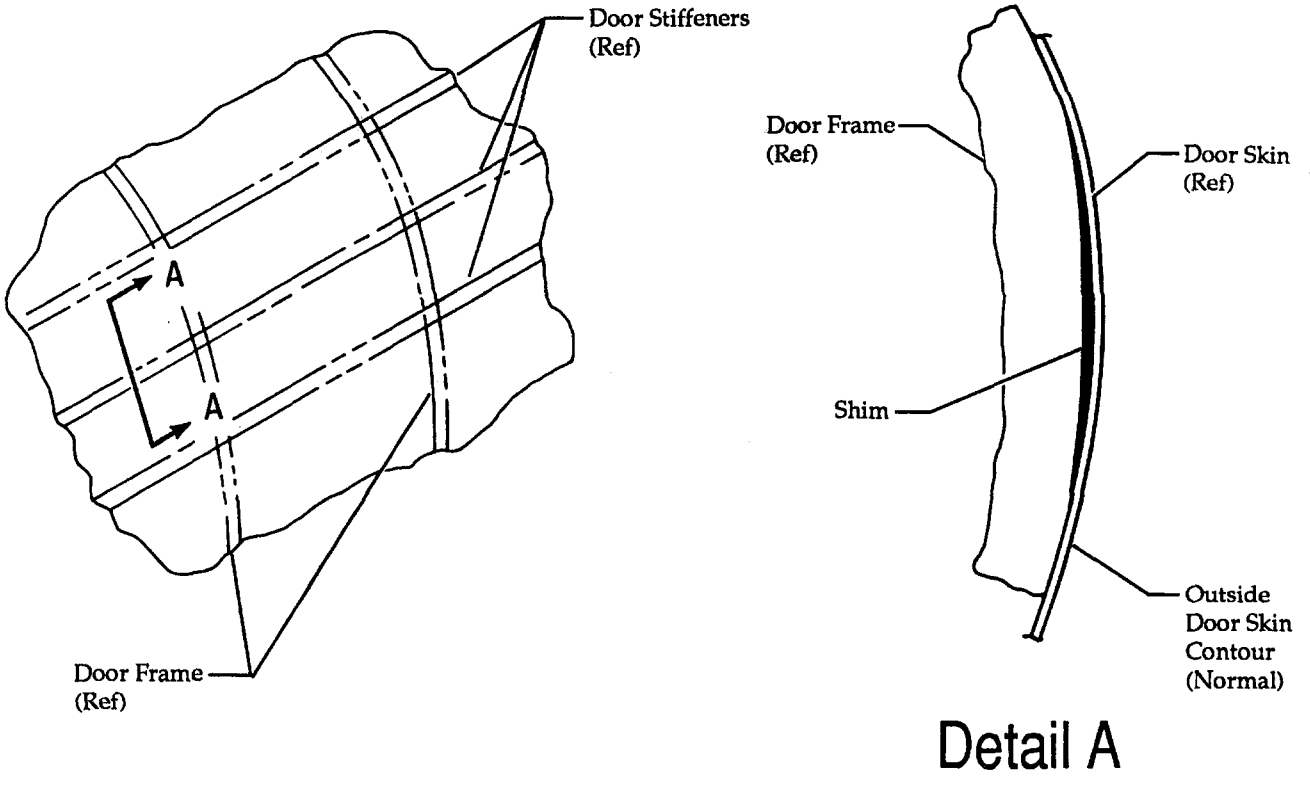
1. Out-of-Contour condition can exists when door skin is secured in place and door is dented.

LIMITATIONS

1. Out-of-Contour area may not exceed 12.0 inches (304 mm) in length by 0.080 inch (2.03 mm) in depth. Maximum thickness of shim may not exceed 0.063 inch (1.6 mm).
2. Dents may or may not cause deformation of the door substructure which affects the structural integrity of the door.

REPAIR

1. Determine length and depth of area to be shimmed.
2. Fabricate a shim of proper length, thickness and taper, from 2024-T3 aluminum sheet.
3. Apply one (1) coat epoxy primer to shim.
4. Apply faying surface seal to both sides of shim. (Refer to Chapter 51.)
5. Slide shim into place.
6. Drill proper size holes from skin side through shim.
7. Install MS20426AD fasteners.
8. Paint affected areas.

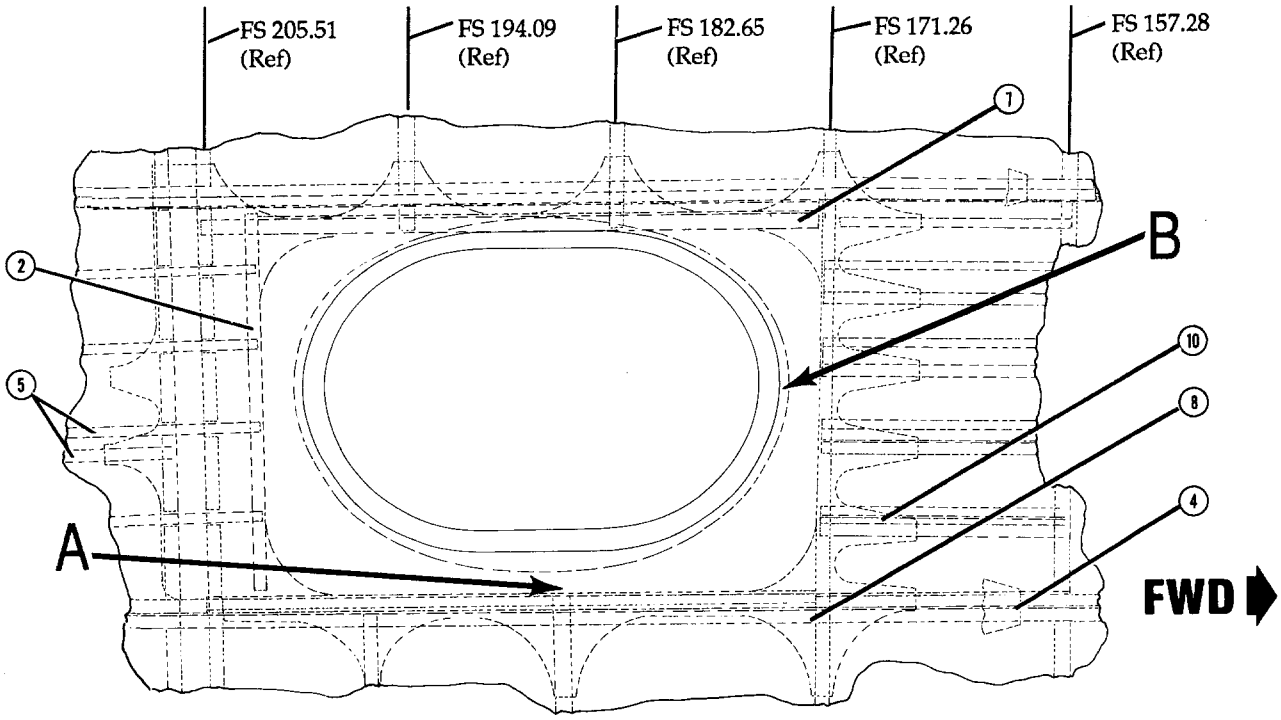


2-153A

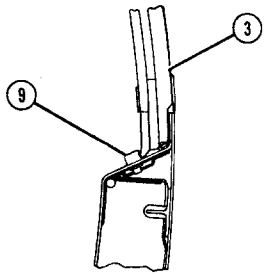
Out-of-Contour Upper Door Skin Repair
Figure 202

EMERGENCY EXIT DOOR - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The emergency exit door is located on the fuselage left side in the the aft passenger compartment. The door contains an acrylic window and can be opened from inside or outside of the aircraft.
   B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for door components such as door seals and door latch mechanism.
   C. Refer to the basic Learjet Maintenance Manual, Chapter 56, for repairs and maintenance procedures for the emergency exit door window.

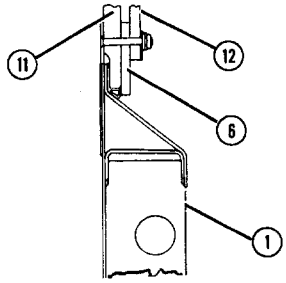


(VIEWED FROM RIGHT SIDE LOOKING INBOARD)



(VIEW LOOKING FWD)

Detail A



(VIEW LOOKING AFT)

Detail B

2-203C

Emergency Exit Door Structure Repair Index
Figure 1 (Sheet 1 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311320	Emergency Exit Door Assy.	1	–	–	–	–
	2388195	Emergency Exit Door Assy.	2	–	–	–	–
1	2311320	• Gusset	3	2024-T4 Clad	0.040	–	Replace
2	2311320	• Bulkhead	3	2024-T4 Clad	0.040	–	Replace
	2311320	• Retainer	4	2024-T3 Clad	0.190	–	Replace
3	2311320	• Catch, Lower	3	2014-T6	0.375	–	Replace
4	2311320	• Doubler	3	2024-T3 Clad	0.080	–	Replace
	2311320	• Retainer	4	2024-T3 Clad	0.050	–	Replace
5	2311320	• Gusset	3	2024-T42 Clad	0.040	–	Replace
	2311320	• Retainer	5	2024-T4 Clad	0.250	–	Replace
	2311320	• Plate	5	2024-T3 Clad	0.080	–	Replace
6	2311320	• Spacer	1	2024-T42 Clad	0.250	–	Replace
	2388195	• Spacer	2	2024-T42 Clad	0.250	–	Replace
	2311320	• Frame, Window Outer	6	2024-T3 Clad	0.090	–	Replace
	2311320	• Retainer, Window Inner	6	2024-T3 Clad	0.090	–	Replace
	2311320	• Channel (2 ea.)	7	2024-T42 Clad	0.040	–	Replace
7	2311320	• Channel (2 ea.)	3	2024-T42 Clad	0.040	–	Replace
8	2311320	• Channel (2 ea.)	3	2024-T42 Clad	0.040	–	Replace
	2311320	• Gang Channel	8	[1]	–	–	Replace
9	2311320	• Retainer	9	2014-T6	0.375	–	Replace
	2311320	• Retainer	10	2014-T6	0.250	–	Replace
10	2311320	• Frame	3	6061-T6	0.040	–	51-70-04
11	2311320	• Ring, Aft	3	2024-T3 Clad	0.080	–	Replace
12	2311320	• Ring, Fwd	3	2024-T3 Clad	0.080	–	Replace
	2311320	• Shim, Laminated (Max. 0.125)	10	[2]	–	–	Replace
	2311320	• Retainer	10	2024-T3 Clad	0.125	–	Replace
	2388195	• Pin Assy.	2	–	–	–	–
	2388195	• • Link	2	321 Stainless	0.125	–	Replace
	2388195	• • Pin	2	2024T4 Clad	0.830	–	Replace
	2311321	• Angle (2 ea.)	2	S-578	–	–	Replace

Emergency Exit Door Structure Repair Index
Figure 1 (Sheet 2 of 6)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099
2	24-100 THRU 24-229
3	23-002 THRU 23-099; 24-100 THRU 24-229
4	23-002 THRU 23-012
5	23-005 THRU 23-099; 24-100 THRU 24-229
6	23-004 THRU 23-099; 24-100 THRU 24-229
7	23-012 AND 23-013
8	23-022 THRU 23-099; 24-100 THRU 24-229
9	23-022 THRU 23-099; 24-100 THRU 24-140
10	24-141 THRU 24-229

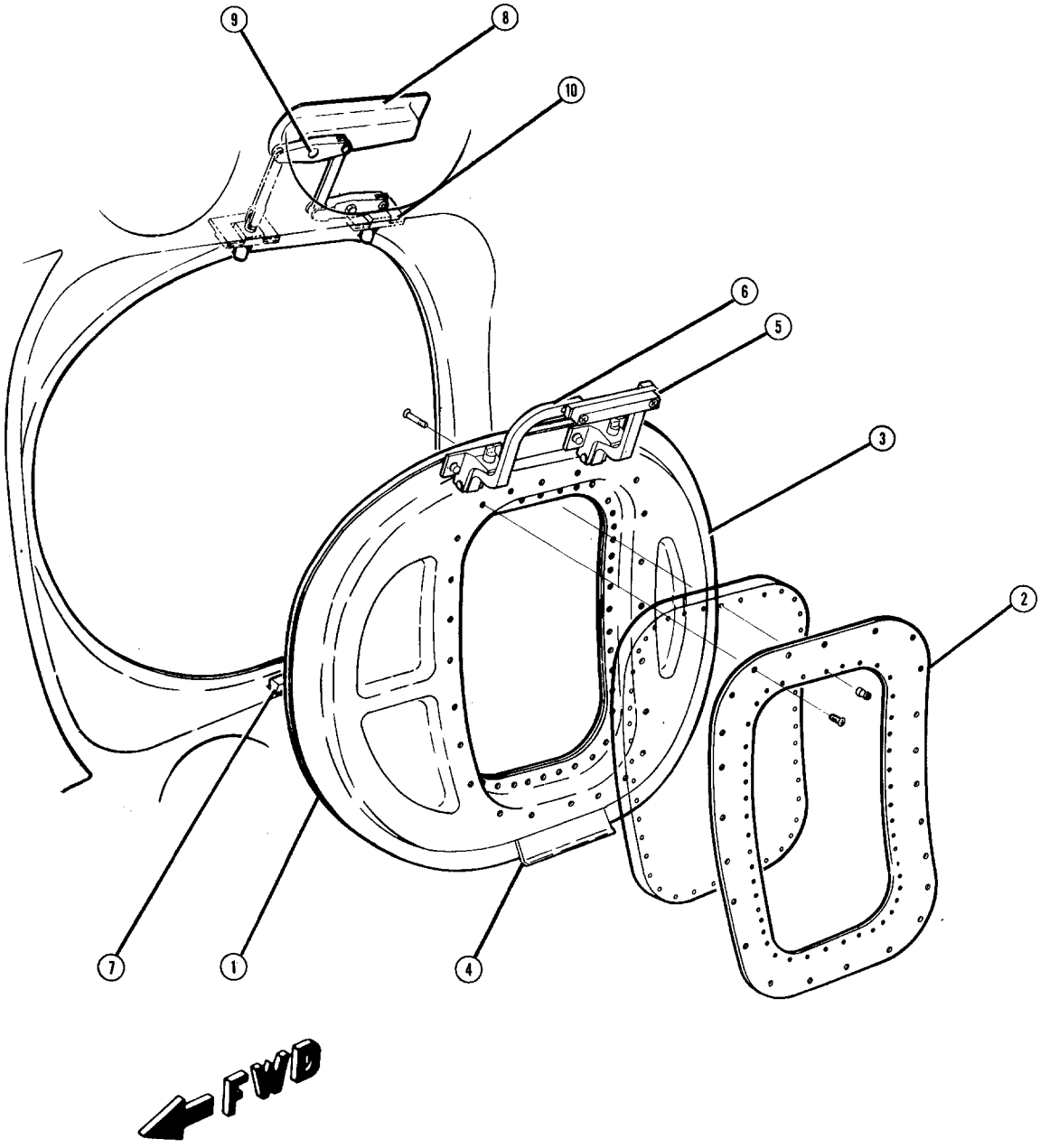
NOTES:

1. Made from G1000-3-10-5, Kaynar Mfg.

2. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

Emergency Exit Door Structure Repair Index
Figure 1 (Sheet 3 of 6)

EMERGENCY EXIT DOOR - STRUCTURAL IDENTIFICATION



(TYPICAL)

2-4B

Emergency Exit Door Structure Repair Index
Figure 1 (Sheet 4 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411320	*Emergency Exit Door Assy.*	1	–	–	–	–
	2511320	Emergency Exit Door Assy.	2	–	–	–	–
1	2411320	• Skin, External	1	2024-T42 Clad	0.040	–	Replace
	2511320	• Skin, External	2	2024-T42 Clad	0.040	–	Replace
2	2511325	• Skin, Internal	1	2024-T3 Clad	0.063	–	Replace
	2411325	• Skin, Internal	2	2024-T3 Clad	0.063	–	Replace
3	2511322	• Pan	3	2024-T42 Clad	0.063	–	Replace
	2511327	• Filler	3	2024-T3 Clad	0.063	–	Replace
	2511323	• Spacer, Inner	3	2024-T42 Clad	0.125	–	Replace
	2511323	• Spacer, Outer	1	2024-T42 Clad	0.125	–	Replace
	2511324	• Spacer, Outer	2	2024-T351 Clad	0.250	–	Replace
4	2411322	• Catch	1	2024-T351 Clad	0.375	–	Replace
	2411320	• Catch, Lower	2	2014-T6 Clad	–	–	Replace
	2411322	• Spacer	3	2024-T3 Clad	0.063	–	Replace
5	2411322	• Support Tee	1	2024-T351	1.600	–	Replace
6	2411322	• Arm, Fwd	1	2024-T351	2.000	–	Replace
	2411322	• Arm, Aft	1	2024-T351	0.438	–	Replace
	2411322	• Strap	1	2024-T3 Clad	0.250	–	Replace
	2411322	• Clip Support	1	2024-T3 Clad	0.040	–	Replace
	2411322	• Pin	1	2024-T4	0.438	–	Replace
	2411321	• Pin	2	2024-T4	0.438	–	Replace
7	2411323	• Retainer (2 ea.)	1	2024-T4 Clad	0.375	–	Replace
	2411320	• Retainer (2 ea.)	2	2014-T6 Clad	0.250	–	Replace
	2411320	• Shim, Laminated (Max. 0.125)	2	▷2	–	–	Replace
8	2388195	• Fairing	2	2024T3 Clad	0.750	–	Replace
	2388195	• *Pin Assy.*	2	–	–	–	–
	2388195	• • Link	2	321 Stainless	0.125	–	Replace
9	2388195	• • Pin	2	2024T4 Clad	0.830	–	Replace
	2411323	• Retainer	2	2024-T4 Clad	0.375	–	Replace
	2311320	• Gang Channel	2	▷1			
	2311320	• Plate	2	2024-T3 Clad	0.080	–	Replace
10	2311321	• Angle (2 ea.)	2	S-578	–	–	Replace

Emergency Exit Door Structure Repair Index
Figure 1 (Sheet 5 of 6)

CODES	EFFECTIVITIES
1	24-218, 24-230 THRU 24- 357; 25-061, 25-070 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	25-002 THRU 25-066, EXCEPT 25-061
3	24-218, 24-230 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

NOTES:

1. Made from G1000-3-10-5, Kaynar Mfg.

2. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

Emergency Exit Door Structure Repair Index
Figure 1 (Sheet 6 of 6)

EMERGENCY EXIT DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the emergency exit door assembly or structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

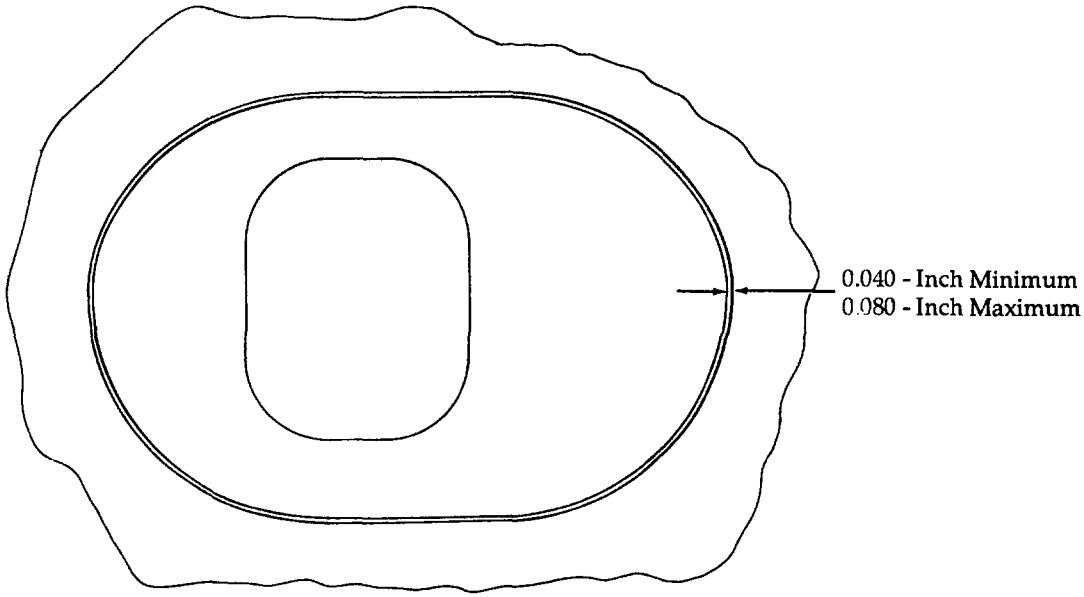
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the emergency exit door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for emergency exit door components such as door seals and door latch mechanism.
C. Skin gap tolerance between the emergency exit door skin and fuselage skin is 0.040-inch (1.016 mm) minimum to 0.080-inch (2.032 mm) maximum around perimeter of door (see Figure 201).



(TYPICAL)

2-145A

Emergency Exit Door Skin Gap Tolerance
Figure 201

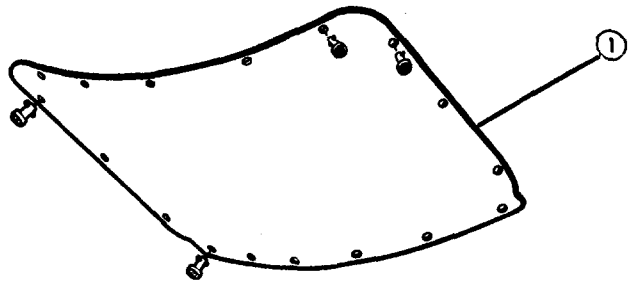
SERVICE DOORS - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. Service doors covered in this section are the tailcone access door, nose compartment access doors, oil filler doors, oxygen bottle access door and single-point pressure refueling door.
      (1) The tailcone access door is located on the bottom side of the fuselage, in the aft section of the aircraft. Refer to Tailcone Access Door Structure Repair Index (52-40-01) for structural components.

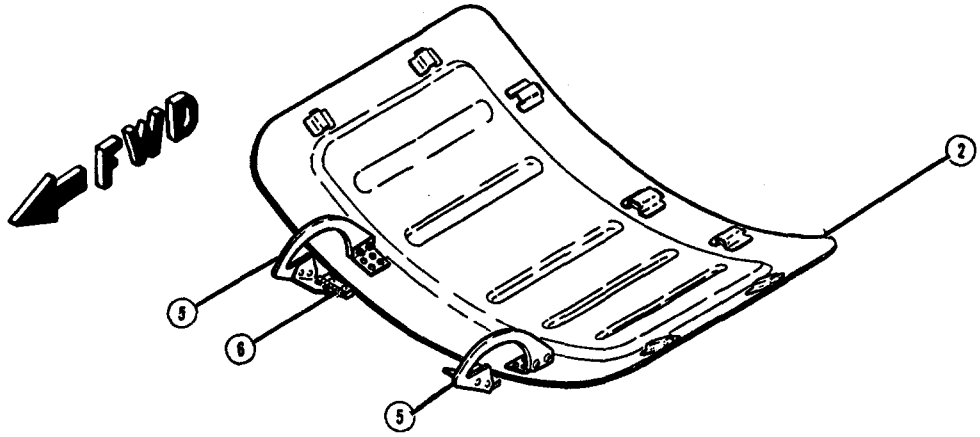
      NOTE: On *Aircraft equipped with drag chute*, refer to the applicable kit and/or kit drawing for additions, modifications and changes to structural components and assemblies.

      (2) The nose compartment access doors are located on the top side of the fuselage forward of the windshield. Refer to Nose Compartment Access Door Structure Repair Index (52-40-05) for structural components.
      (3) The oil filler access doors are located on the upper cowl assembly of each engine nacelle. Refer to Oil Filler Access Doors Structure Repair Index (52-40-10) for structural components.
      (4) On *Aircraft equipped with nose compartment oxygen cylinder*, an access door is located on the right hand side of the nose compartment aft of frame 2. On *Aircraft equipped with a dorsal fin oxygen cylinder*, an access door is located on the right hand side of the dorsal fin. Refer to Oxygen Bottle Access Door Structure Repair Index (52-40-15) for structural components.
      (5) On *Aircraft equipped with single-point pressure refueling*, an access door is located on the right hand side of the fuselage just above and aft of the wing trailing edge. Refer to Single-Point Pressure Refueling Access Door Structure Repair Index (52-40-20) for structural components.
   B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for service door components such as seals, and door latch mechanism.

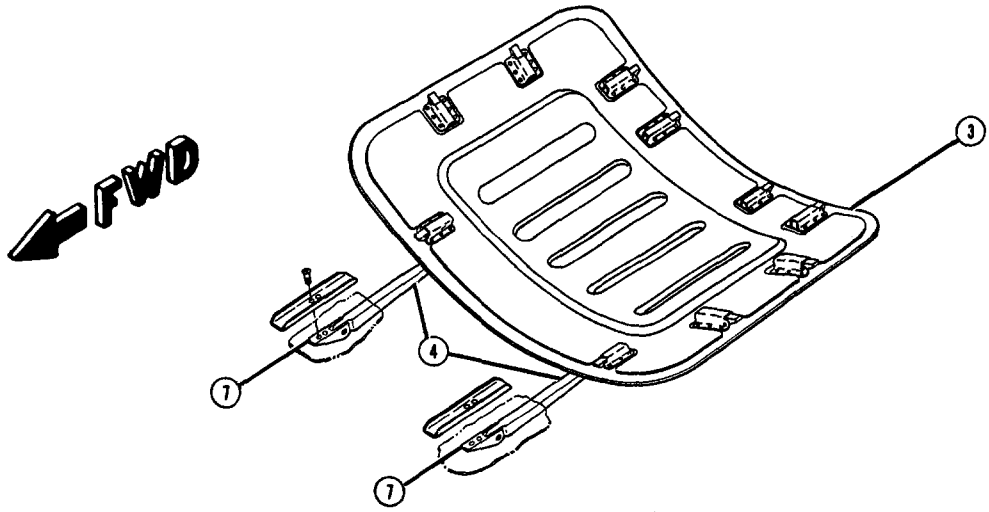
TAILCONE ACCESS DOOR - STRUCTURAL IDENTIFICATION



(23-002 thru 23-099; 24-100 thru 24-357)



(25-002 thru 25-357; 28-001 thru 28-005; 29-001 thru 29-004; 31-002 thru 31-089; 35-002 thru 35-676; 36-001 thru 36-063)



(31-089 and Subsequent; 35-677 and Subsequent; 36-064 and Subsequent)

3-6B
3-5C
3-52B

Tailcone Access Door Structure Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2312015	Tailcone Access Door Assy	1	–	–	–	–
1	2312015	• Door	1	2024-T3 Clad	0.040	F4-1	51-70-02
	2312015	• Stringer	1	S-557	–	–	Replace
	2312015	• Spacer (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2312015	• Doubler	1	2024-T3 Clad	0.040	–	Replace
	2512049	Tailcone Access Door Instl.	2	–	–	–	–
	2512049	Tailcone Access Door Instl.	3	–	–	–	–
2	2512051	• Tailcone Access Door Assy.	2	–	–	–	Replace
	2312051	• • Skin	2	2024-T3 Clad	0.040	1	51-70-02
	2312051	• • Inner Pan	2	2024-T42 Clad	0.032	F4-1	Replace
	2312051	• • Doubler	2	2024-T3 Clad	0.040	F4-1	Replace
	2512051	• • Shim, Laminated (Max. 0.040)	2	2	–	–	Replace
3	3112052	• Tailcone Access Door Assy.	3	–	–	–	Replace
	2588061	• • Skin, Inner	3	2024-T42 Clad	0.040	F4-1	Replace
	2588061	• • Skin, Outter	3	2024-T3 Clad	0.050	1	51-70-02
	2588061	• • Doubler	3	2024-T3 Clad	0.071	F4-1	Replace
	2588061	• • Shim, Laminated (Max. 0.040)	3	2	–	–	Replace
4	2488716	• • Hinge, LH & RH	3	2024-T3 Bar	0.500	F-1	Replace
5	2512042	• • Hinge Assy., LH & RH	2	–	–	–	Replace
	2512042	• • • Angle, LH & RH	2	S-608	–	F4-6	Replace
	2512042	• • • Hinge Arm, LH & RH	2	2024-T351 Clad	0.250	F4-6	Replace
6	2512015	• • Hinge Assy. (2 ea.)	2	–	–	–	Replace
	2512015	• • • Hinge Half (4 ea.)	2	3	–	F4-1	Replace
	2512015	• • • Hinge Pin (2 ea.)	2	4	–	F4-1	Replace
7	2488715	• • Hinge, LH & RH	3	4130 Steel Bar	0.500	F8	Replace
	2488700	• • Channel Assy.	3	–	–	–	Replace
	2488700	• • • Channel	3	2024-T42 Clad	0.040	F4-1	Replace
	2588061	• • Shim, Laminated (Max. 0.094)	3	2	–	–	Replace
	2512047	• • Clip, LH & RH	4	2024-T42 Clad	0.100	F4-1	Replace
	2512046	• • Clip, LH & RH	4	2024-T42 Clad	0.100	F4-1	Replace
	2512045	• • Clip, LH & RH	4	2024-T42 Clad	0.100	F4-1	Replace
	2512044	• • Clip, LH & RH	4	2024-T42 Clad	0.100	F4-1	Replace
	2512043	• • Hinge Spacer (2 ea.)	4	2024-T351 Clad	0.050	F4-1	Replace
	2512015	• • Intercostal, LH & RH (3 ea.)	4	2024-T42 Clad	0.063	F4-1	Replace
	2512015	• • Angle (2 ea.)	4	5	0.063	F8-1	Replace
	2512015	• • Stiffener (2 ea.)	4	S-681	–	F4-1	Replace
	2512049	• • Doubler	4	2024-T42 Clad	0.090	F4-4	Replace
	2512049	• • Filler (6 ea.)	4	2024-T3 Clad	0.032	F4-1	Replace

Tailcone Access Door Structure Repair Index
Figure 1 (Sheet 2 of 2)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357
2	25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 THRU 31-088; 35-002 THRU 35-676; 36-001 THRU 36-063
3	31-089 AND SUBSEQUENT; 35-677 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
4	*25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT;* 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

NOTES:

1> Finish F14-1 interior, F-1 exterior.

2> Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1, Class 1 or Class 2, 1145-H19 aluminum sheet.

3> Made from MS20001-4.

4> Made from MS20252P2.

5> 4130 Steel, Condition Normalized.

TAILCONE ACCESS DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone access door, structure assembly or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

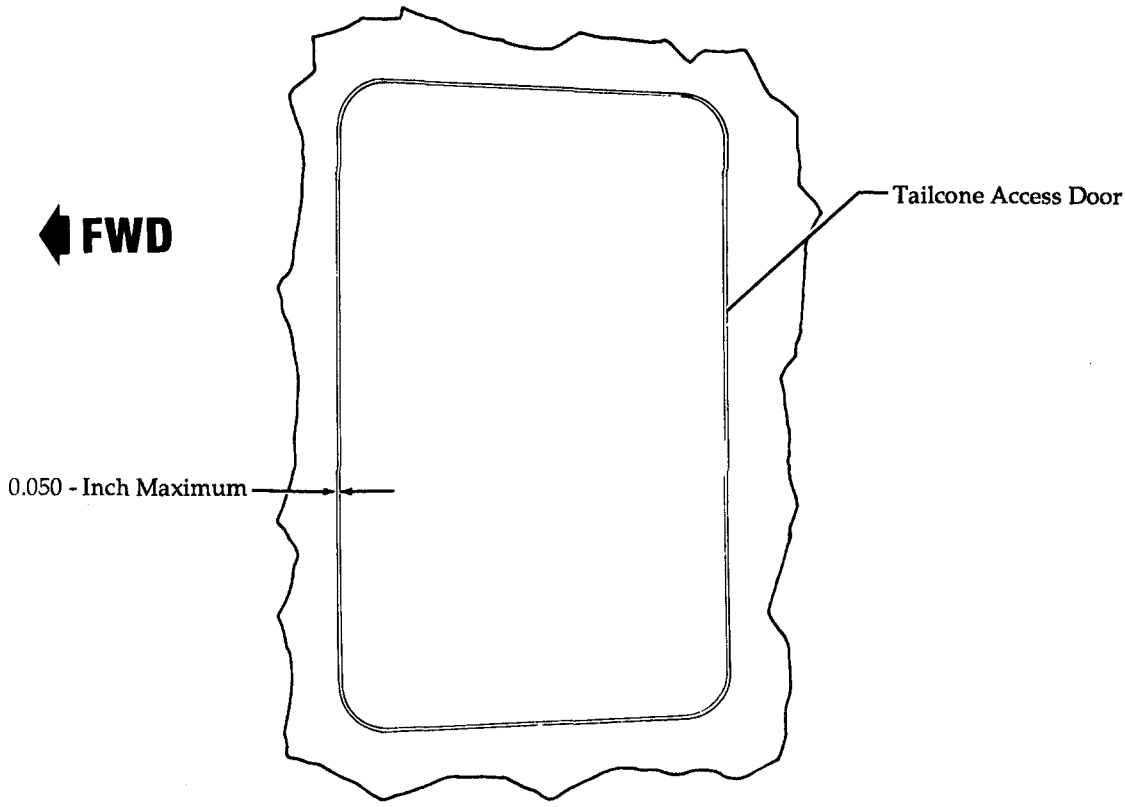
Allowable Material Thickness
Figure 101

TAILCONE ACCESS DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the tailcone access door structure.
B. See Figure 201 for tailcone access door skin gap tolerances.
C. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for tailcone access door components such as seals, and door latch mechanism.

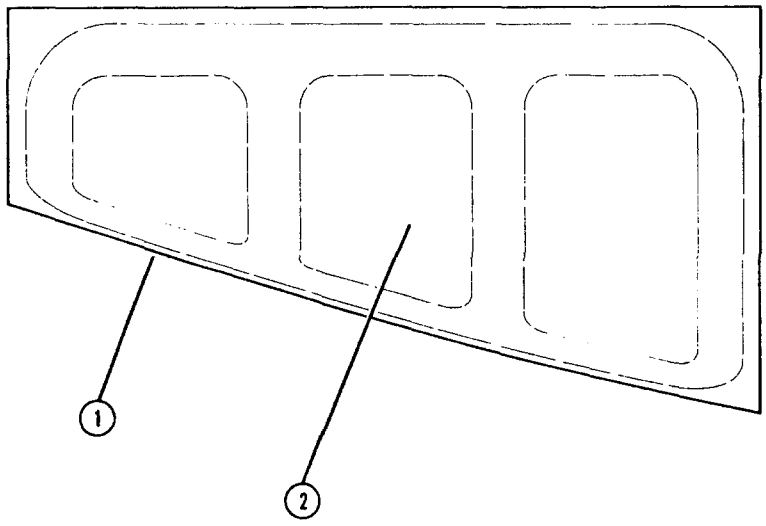


(VIEW LOOKING UP)

2-146C

Tailcone Access Door Skin Gap Tolerance
Figure 201

NOSE COMPARTMENT ACCESS DOORS - STRUCTURAL IDENTIFICATION



FWD

(VIEW LOOKING DOWN)

(LH SHOWN, RH TYPICAL)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311450	Nose Compartment Access Door Assy, *LH & RH*	1	–	–	–	–
1	2311450	• Door	1	2024-T42 Clad	0.032	–	51-70-02
2	2311450	• Pan	1	2024-T42 Clad	0.025	–	51-70-02

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

1-18B

Nose Compartment Access Doors Structure Repair Index
Figure 1

NOSE COMPARTMENT ACCESS DOORS - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the nose compartment access doors or structure assembly is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

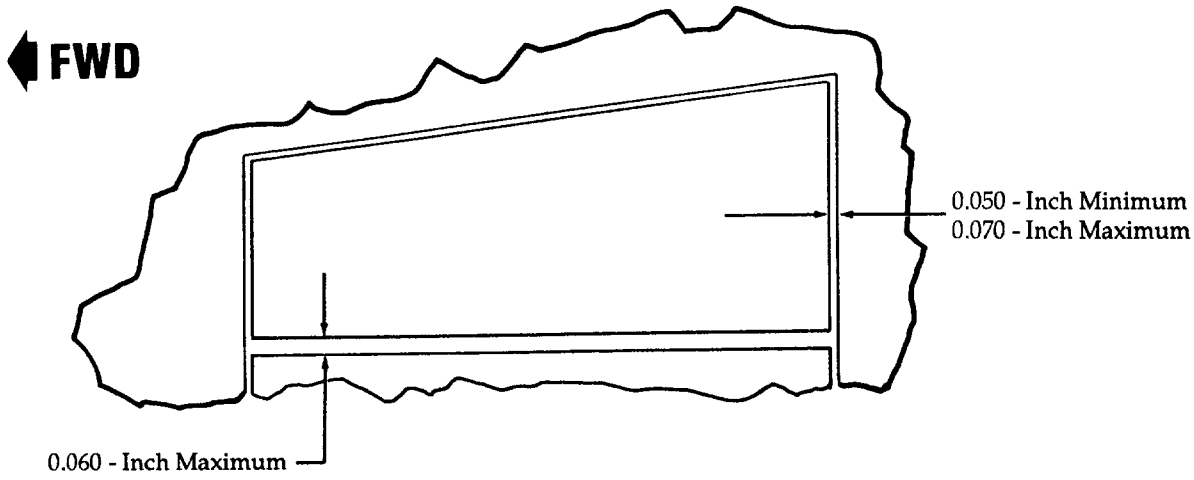
Allowable Material Thickness
Figure 101

NOSE COMPARTMENT ACCESS DOORS - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

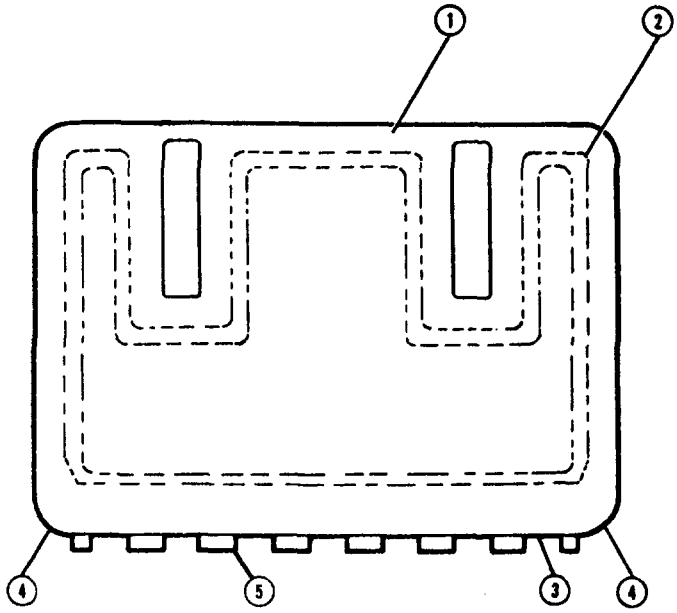
A. Refer to Chapter 51 for typical repairs for the nose compartment access door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for door components such as door seals and door latch mechanism.
C. See Figure 201 for nose compartment access door skin gap tolerances.



2-146C

Nose Compartment Access Doors Skin Gap Tolerances
Figure 201

OIL FILLER ACCESS DOOR - STRUCTURAL IDENTIFICATION



(TYPICAL)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2452004	Oil Filler Door Assy., LH & RH	1	–	–	–	–
	2652023	Oil Filler Door Assy., LH & RH	2	–	–	–	–
1	2452004	• Skin, Outer	1	2024-T42 Clad	0.063	–	51-70-02
	2652023	• Skin, Outer	2	2024-T42 Clad	0.025	–	51-70-02
2	2652023	• Pan, Inner	2	2024-T42 Clad	0.025	–	51-70-02
3	2652023	• Filler	2	2024-T42 Clad	0.080	–	Replace
4	2652023	• Filler	2	2024-T42 Clad	0.080	–	Replace
5	MS2000-						
	1P4-700	Hinge Assy.	2	–	–	–	Replace
	40S5-4	Hinge Pin	2	–	–	–	Replace

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004
2	31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

14-195A

Oil Filler Access Door Structure Repair Index
Figure 1

OIL FILLER ACCESS DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the oil filler access door, structure assembly or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

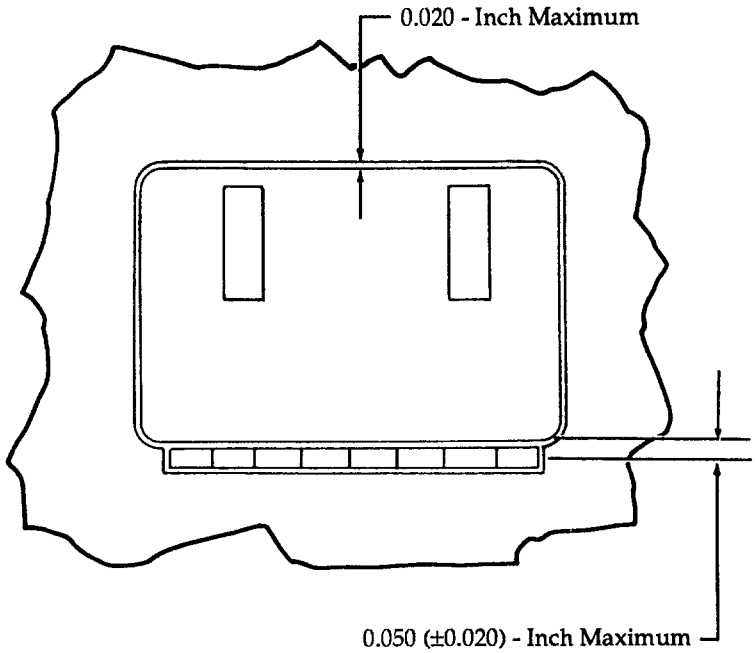
Allowable Material Thickness
Figure 101

OIL FILLER ACCESS DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified

A. Refer to Chapter 51 for typical repairs for the oil filler access door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 52, for repairs and maintenance procedures for door components such as door seals and door latch mechanism.
C. See Figure 201 for oil filler access door skin gap tolerances.

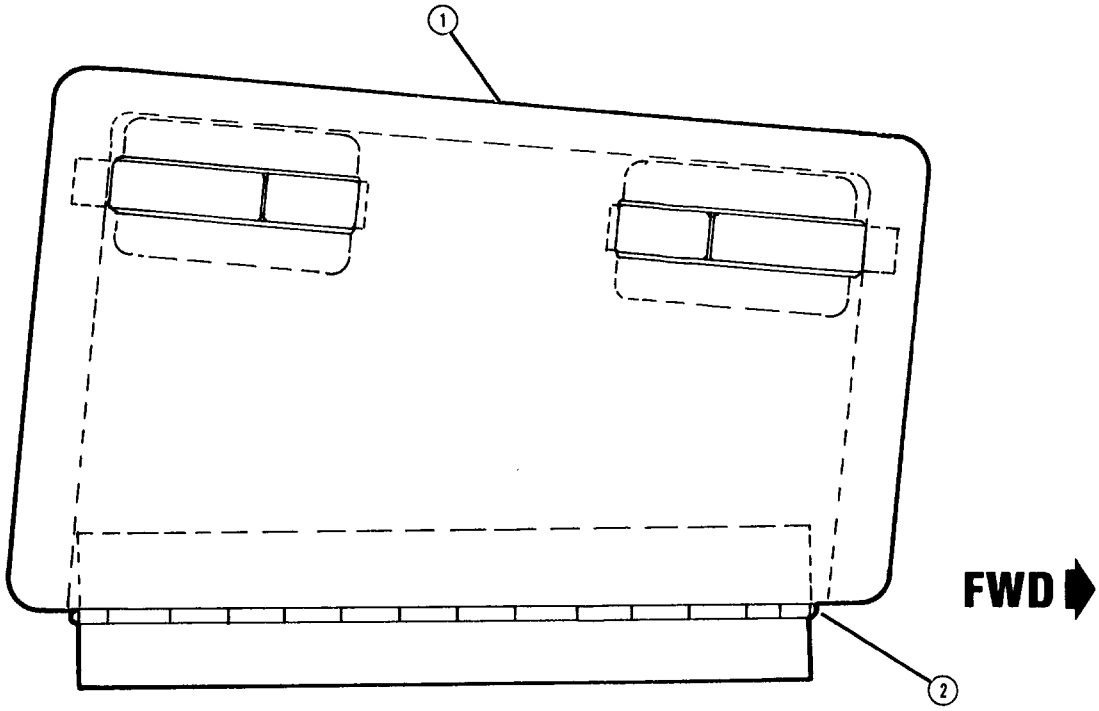


(TYPICAL)

2-146C

Oil Filler Access Door Skin Gap Tolerances
Figure 201

OXYGEN BOTTLE ACCESS DOOR - STRUCTURAL IDENTIFICATION



(VIEW FROM RIGHT SIDE, LOOKING INBOARD)

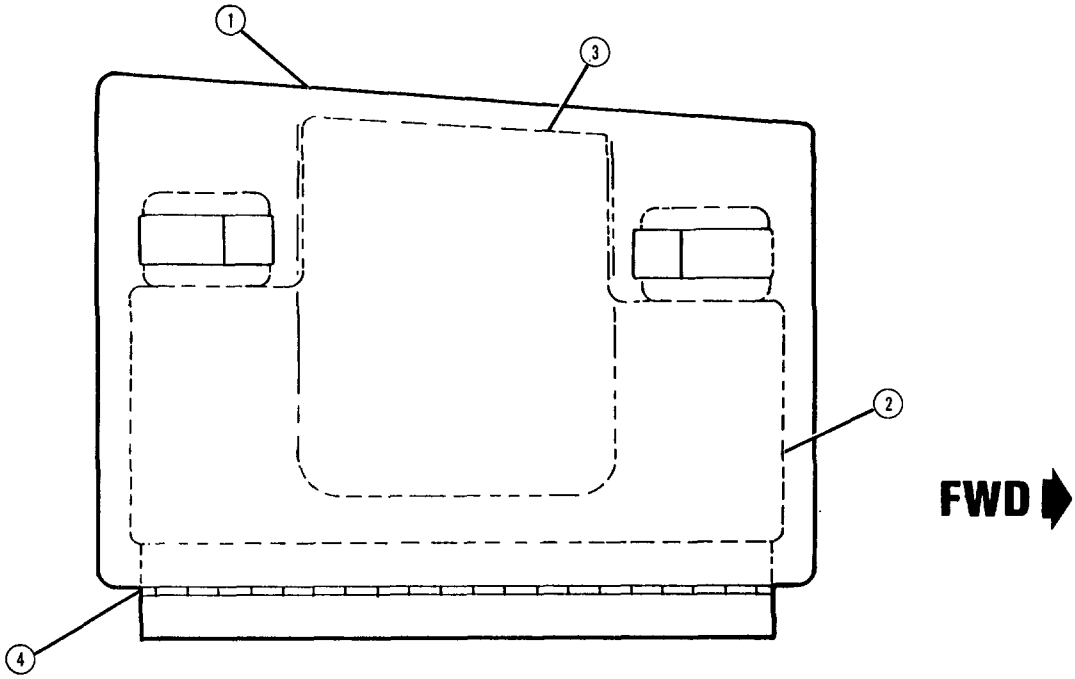
ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2319055	Oxygen Bottle Nose Compartment Access Door Assy.	1	–	–	–	–
1	2319055	• Door	1	2024-T42 Clad	0.040	–	Replace
	2319055	• Spacer	1	2024-T42 Clad	0.032	–	Replace
2	2319055	• Hinge	1	MS35821-5A	–	–	Replace

CODES	EFFECTIVITIES
1	24-110 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

2-204B

Oxygen Bottle (Nose Compartment) Access Door Structure Repair Index
Figure 1

OXYGEN BOTTLE ACCESS DOOR - STRUCTURAL IDENTIFICATION



ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2512021	Oxygen Bottle Access Door Assy.	1	–	–	–	–
	2512052	Oxygen Bottle Access Door Assy.	2	–	–	–	–
1	2512021	• Door	1	2024-T42 Clad	0.040	–	Replace
	2512052	• Door	2	2024-T3 Clad	0.040	–	Replace
2	2512021	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
	2512052	• Stiffener	2	2024-T3 Clad	0.025	–	Replace
3	2512021	• Spacer	1	2024-T3 Clad	0.032	–	Replace
	2512052	• Spacer	2	2024-T3 Clad	0.032	–	Replace
4	2512021	• Hinge	1	MS35821-5A	–	–	Replace
	2512052	• Hinge	2	MS35821-10A	–	–	Replace

CODES	EFFECTIVITIES
1	25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-002 THRU 35-491; 36-001 THRU 36-034
2	31-002 AND SUBSEQUENT; 35-492 AND SUBSEQUENT; 36-035 AND SUBSEQUENT

Oxygen Bottle (Dorsal Fin) Access Door Structure Repair Index
Figure 2

OXYGEN BOTTLE ACCESS DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the oxygen bottle access door, structure assembly or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

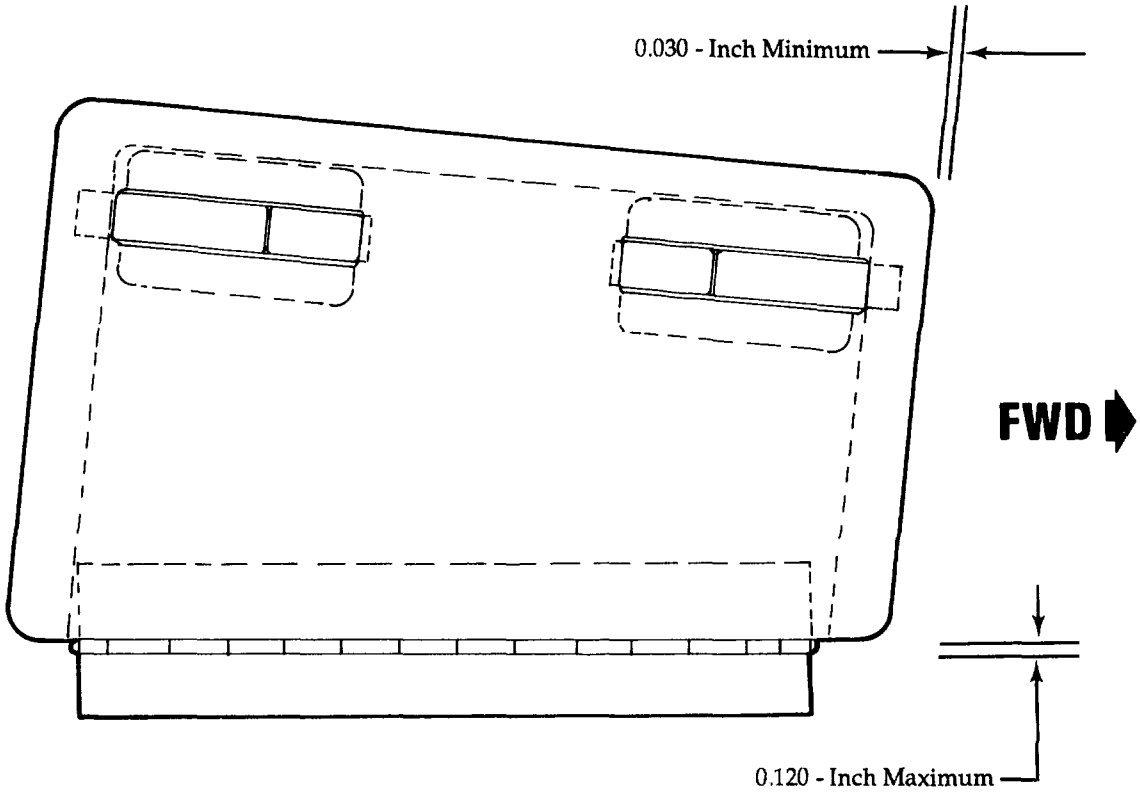
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the oxygen bottle access door structure.
B. Refer to the basic Learjet Maintenance Manual for repairs and maintenance procedures for oxygen bottle access door components such as door seals and door latch mechanism.
C. See Figure 201 for oxygen bottle access door skin gap tolerances.

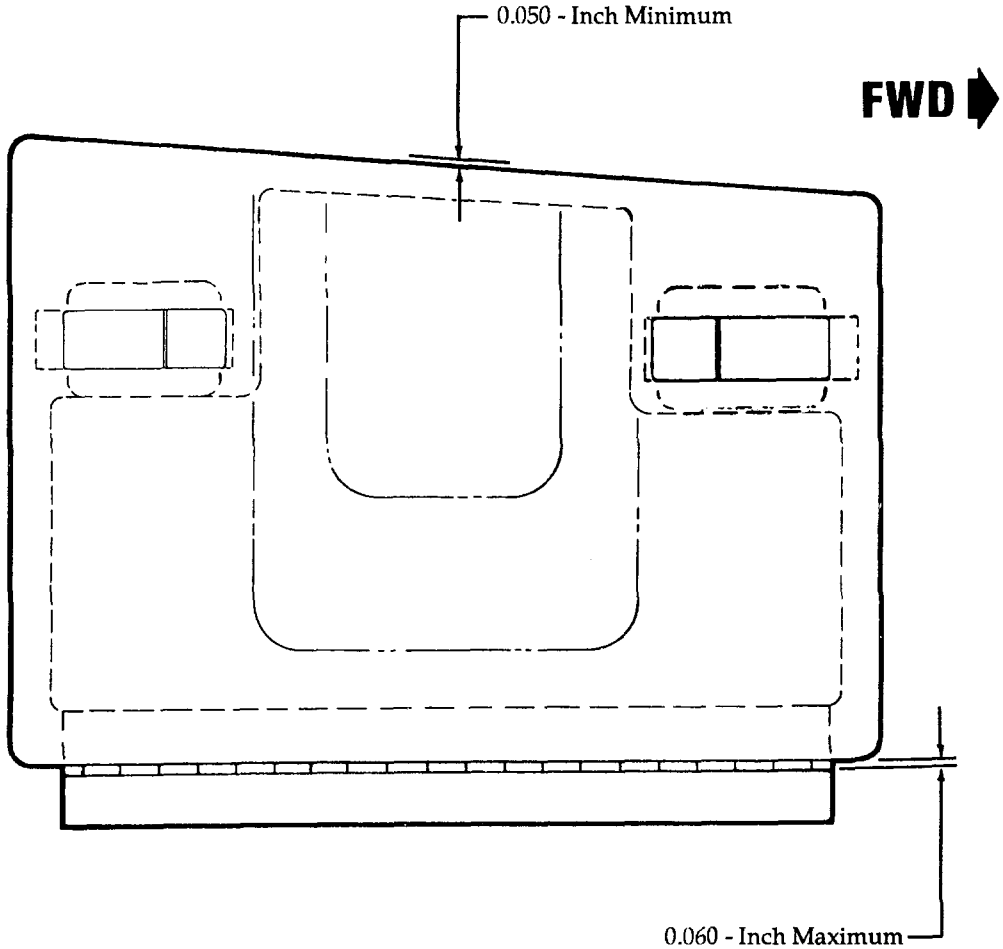


(Aircraft equipped with Nose Compartment Oxygen Bottle Access Door)

(VIEW FROM RIGHT SIDE, LOOKING INBOARD)

2-204B

Oxygen Bottle Access Door Skin Gap Tolerances
Figure 201 (Sheet 1 of 2)



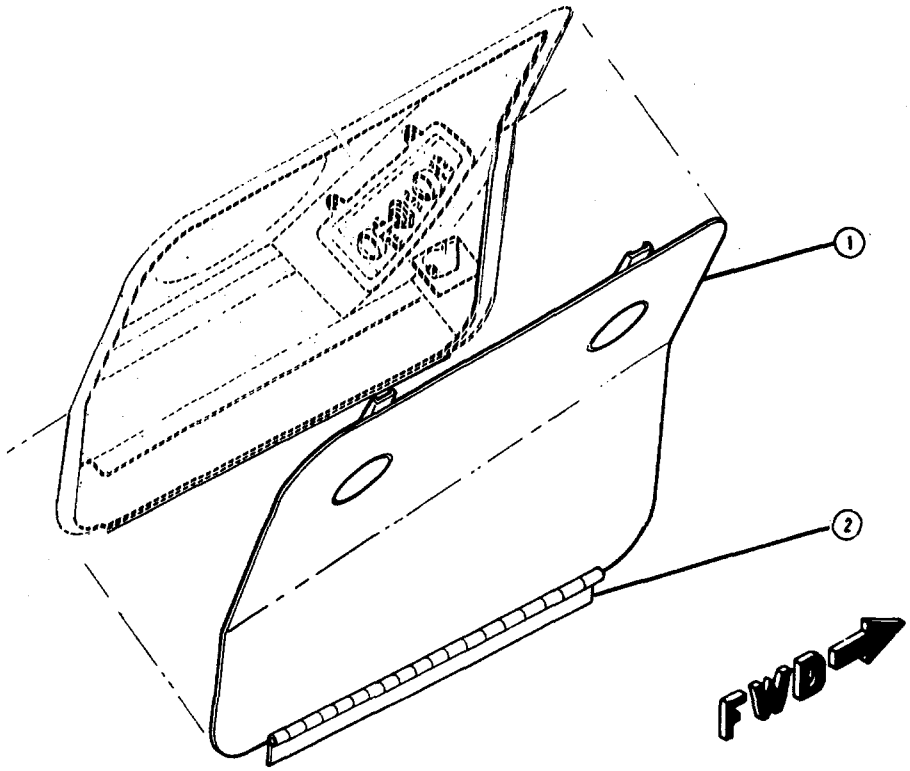
(Aircraft equipped with Dorsal Fin Oxygen Bottle Access Door)

(VIEW FROM RIGHT SIDE, LOOKING INBOARD)

2-204B

Oxygen Bottle Access Door Skin Gap Tolerances
Figure 201 (Sheet 2 of 2)

SINGLE-POINT PRESSURE REFUELING DOOR - STRUCTURAL IDENTIFICATION



ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3112015	Single-Point Pressure Refueling Door	1	–	–	–	–
1	3112015	• Door	1	2024-T42	0.050	–	Replace
	3112015	• Bracket	1	2024-T42	0.050	–	Replace
2	3112013	Hinge Assy.	1	[1]	–	–	Replace

CODES **EFFECTIVITIES**

1 31-001 AND SUBSEQUENT

NOTES:

[1] Made from MS35822-10C Butt Hinge.

12-81B

Single-Point Pressure Refueling Door Structure Repair Index
Figure 1

SINGLE-POINT PRESSURE REFUELING DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of single-point pressure refueling door, structure or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

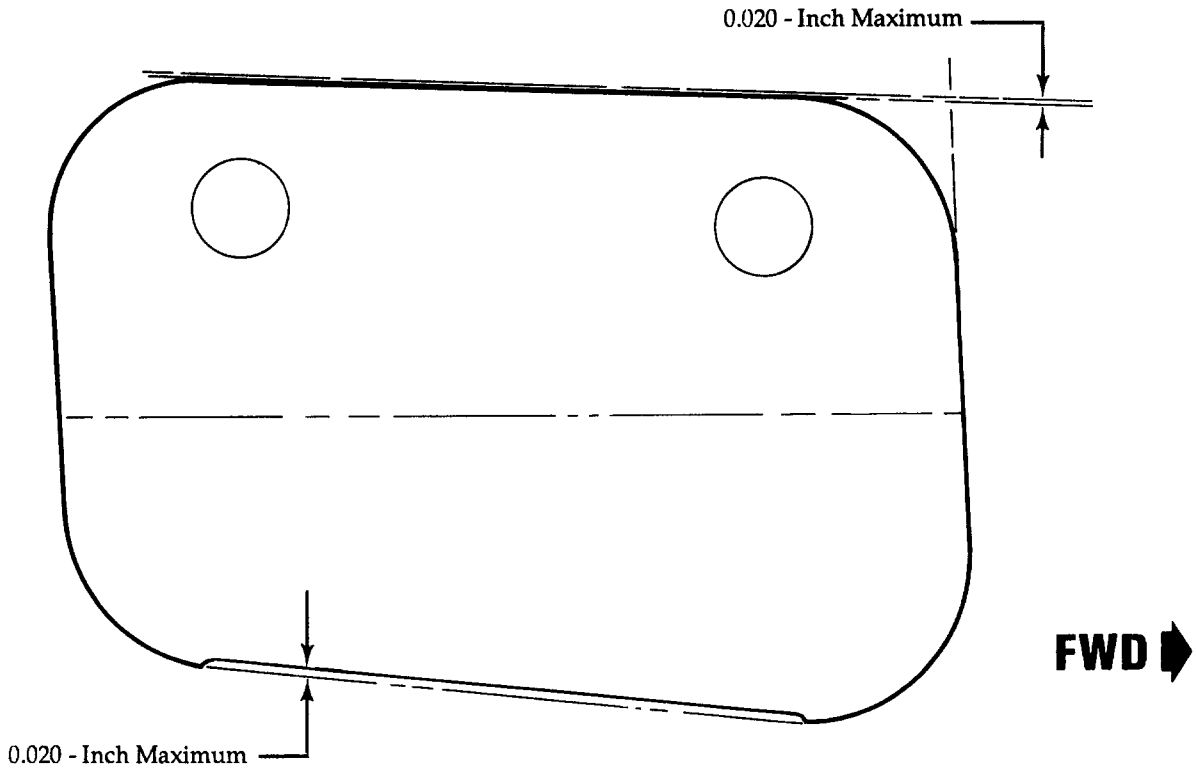
Allowable Material Thickness
Figure 101

SINGLE-POINT PRESSURE REFUELING DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the single-point pressure refueling door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 28, for repairs and maintenance procedures for the single-point pressure refueling door components such as door seals and door latch mechanism.
C. See Figure 201 for single-point pressure refueling door skin gap tolerances.



(VIEW FROM RIGHT SIDE, LOOKING INBOARD)

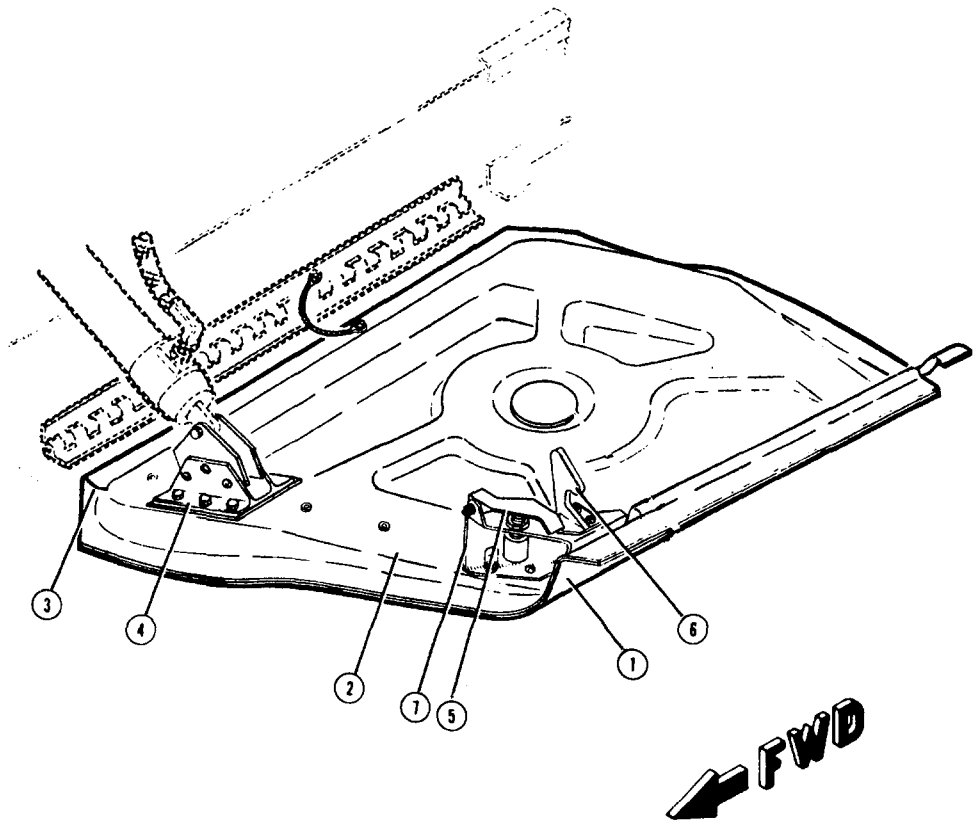
2-204B

Single-Point Pressure Refueling Door Skin Gap Tolerances
Figure 201

MAIN LANDING GEAR DOORS - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. Both inboard landing gear doors and outboard landing gear doors are covered in this section.
   B. See Figure 1, 52-80-10, for main landing gear inboard door structure repair index.
   C. See Figure 1, 52-80-20, for main landing gear outboard door structure repair index.

MAIN LANDING GEAR INBOARD DOOR - STRUCTURAL IDENTIFICATION



6-6C

Main Landing Gear Inboard Door Structure Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311620	Main Landing Gear Inboard Instl.	1				
	2496200	• Main Landing Gear Inboard Door Assy., LH & RH	2	–	–	–	–
	2311620	• Main Landing Gear Inboard Door Assy., LH & RH	3	–	–	–	–
1	2311620	• • Door	1	2024-T42 Clad	0.040	–	Replace
2	2311620	• • Door Pan	1	2024-T42 Clad	0.050	–	Replace
	2311620	• • Door Pan Support	1	2024-T42 Clad	0.050	–	Replace
3	2311620	• • Support Angle	1	4130 Steel [1]	0.071	–	Replace
4	2327020	• • Fitting	2	S-627	–	–	Replace
	3127010	• • Fitting	3	2024-T351	–	–	Replace
	2311620	• • Doubler	1	2024-T3 Clad	0.032	–	Replace
	2311620	• • Stopper	1	Nylon	0.189	–	Replace
	2311620	• • Filler	3	2024-T3	0.100	–	Replace
5	2311628	• Lever Assy.	1	–	–	–	–
	2311628	• • Plate	1	321 Stainless	0.080	–	Replace
	2311628	• • Lug	1	321 Stainless	0.080	–	Replace
	2311628	• • Stop Plate	1	321 Stainless	0.080	–	Replace
6	2348040	• Hook Assy.	1	–	–	–	–
	2348040	• • Mounting Plate	1	4130 Steel [2]	0.125	–	Replace
	2348040	• • Hook	1	4130 Steel [2]	0.250	–	Replace
7	2311630	• Bracket Assy.	1	–	–	–	–
	2311630	• • Tee	1	S-592	–	–	Replace
	2311630	• • Bracket	1	2024-T42 Clad	0.100	–	Replace
	2311630	• • Gusset	1	2024-T42 Clad	0.063	–	Replace
	2311630	• • Channel	1	S-646	–	–	Replace
	2327021	• Plate	1	2024-T3 Clad	0.120	–	Replace
	2311628	• Bushing	1	4130 Steel	0.250	–	Replace

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
3	31-002 AND SUBSEQUENT

NOTES:

[1] Condition Normalized.

[2] Condition Annealed.

Main Landing Gear Inboard Door Structure Repair Index
Figure 1 (Sheet 2 of 2)

MAIN LANDING GEAR INBOARD DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the main landing gear inboard door, structure assembly or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

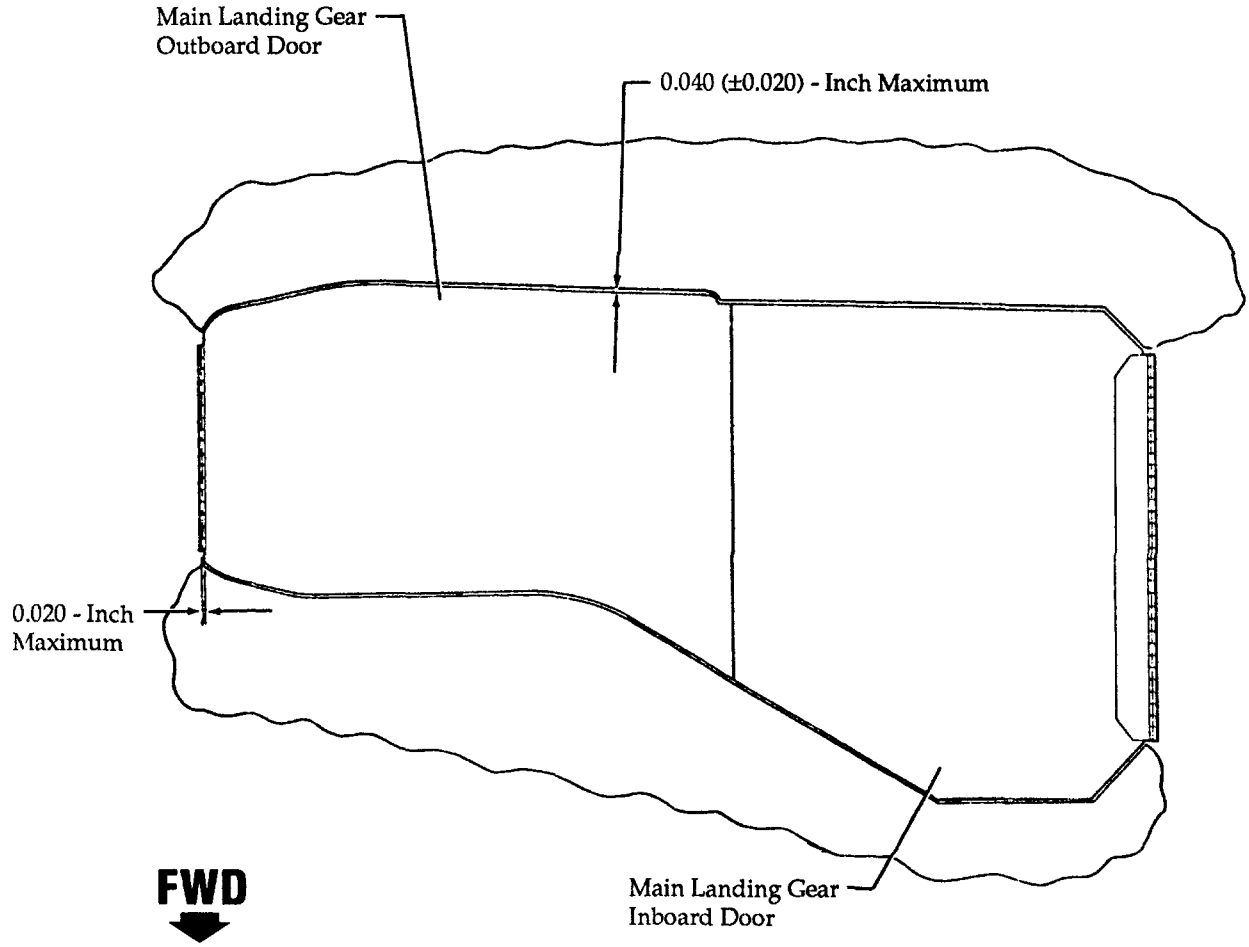
Allowable Material Thickness
Figure 101

MAIN LANDING GEAR INBOARD DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the main landing gear inboard door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 32, for repairs and maintenance procedures for main landing gear inboard door components such as door seals and door latch mechanism.
C. See Figure 201 for main landing gear inboard door skin gap tolerances.

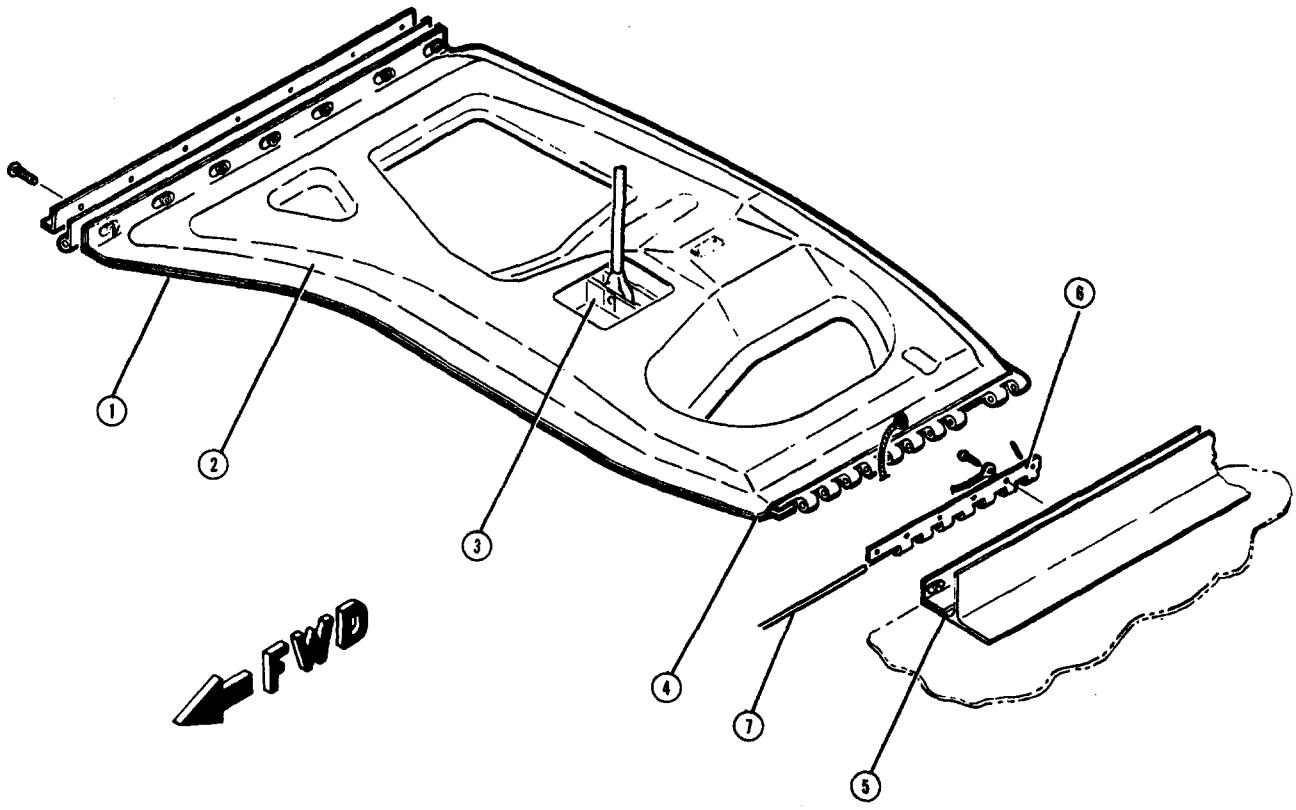


(VIEW LOOKING UP)

(RH SHOWN, LH TYPICAL)

Main Landing Gear Inboard Door Skin Gap Tolerances
Figure 201

MAIN LANDING GEAR OUTBOARD DOOR - STRUCTURAL IDENTIFICATION



6-6C

Main Landing Gear Outboard Door Structure Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422520	Main Landing Gear Outboard Door Assy., LH & RH	1	–	–	–	–
1	2422520	• Panel	1	2024-T42 Clad	0.040		Replace
2	2422520	• Door Pan	1	2024-0 Clad	0.050	–	Replace
3	2322522	• Fitting		495	–	–	Replace
4	2522521	• Support Angle	1	2024-T42 Clad	0.100		Replace
	2522521	• Doubler	1	2024-T3 Clad	0.040	–	Replace
	2522521	• Filler	1	2024-T3 Clad	0.190	–	Replace
5	2522521	• Support	1	S520	–	–	Replace
	2522521	• Hinge Assy.	1	–	–	–	Replace
6	2522521	• • Hinge Half (2 ea.)	1	MS35823-4C	–	–	Replace
7	2522521	• • Hinge Pin	1	MS20253P-1092	–	–	Replace

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

Main Landing Gear Outboard Door Structure Repair Index
Figure 1 (Sheet 2 of 2)

MAIN LANDING GEAR OUTBOARD DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the main landing gear outboard door, structure assembly or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

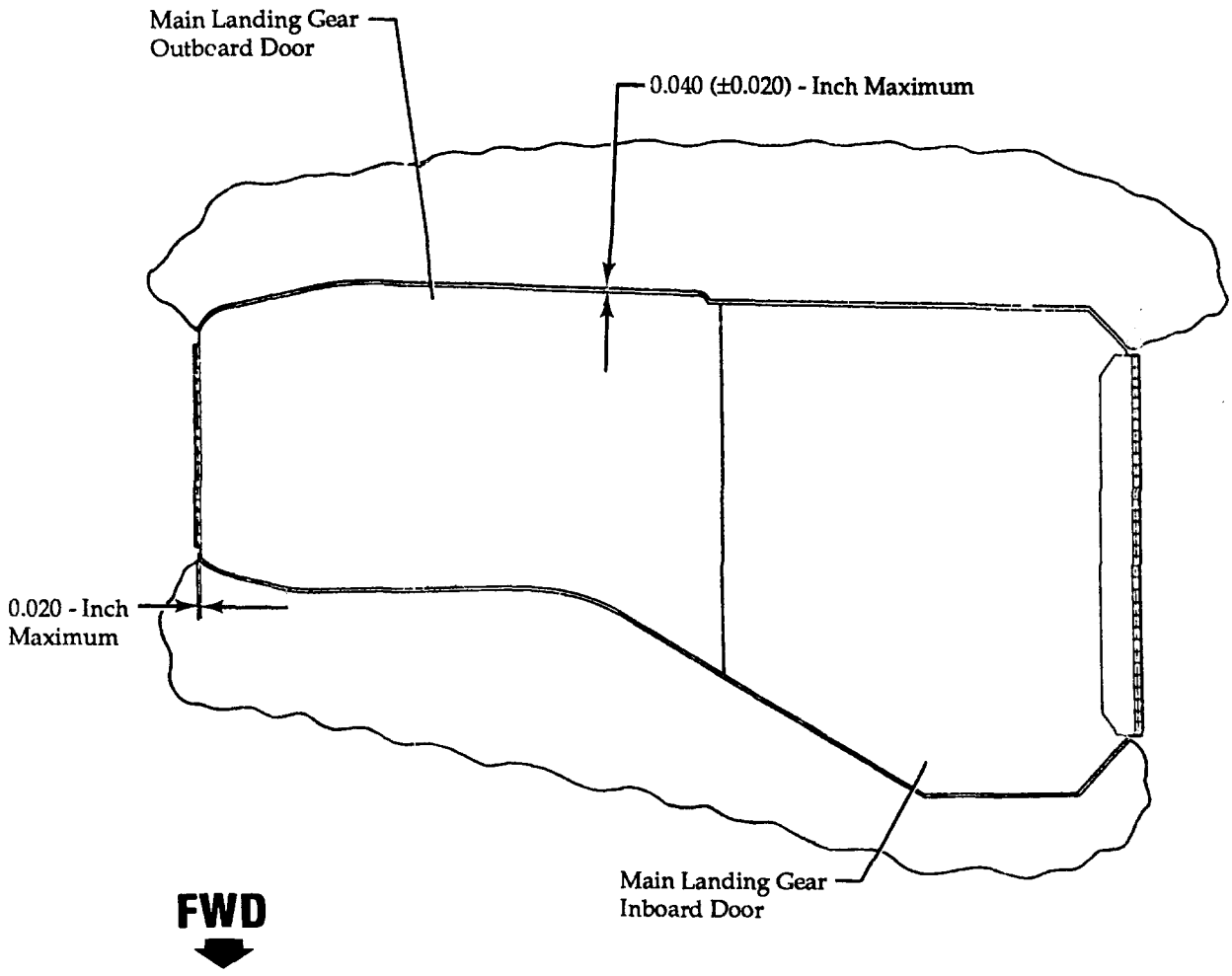
Allowable Material Thickness
Figure 101

MAIN LANDING GEAR OUTBOARD DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the main landing gear outboard door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 32, for repairs and maintenance procedures for main landing gear outboard door components such as door seals and door latch mechanism.
C. See Figure 201 for main landing gear outboard door skin gap tolerances.



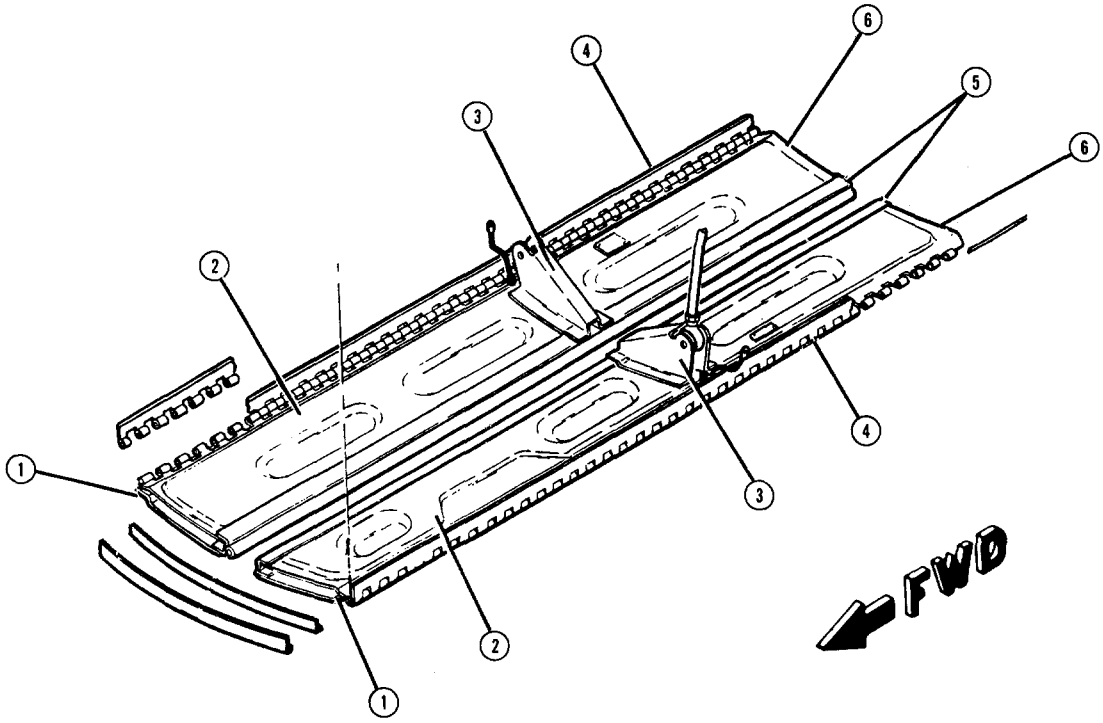
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(RH SHOWN, LH TYPICAL)

4-57B

Main Landing Gear Outboard Door Skin Gap Tolerances
Figure 201

NOSE LANDING GEAR DOORS - STRUCTURAL IDENTIFICATION



1-5D

Nose Landing Gear Door Structure Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2391062	Nose Landing Gear Door Assy., LH & RH	1	–	–	–	–
1	2310620	• Door	1	2024-T42 Clad	0.040	–	Replace
2	2310620	• Door Pan	1	2024-T42 Clad	0.050	–	Replace
3	2310620	• Door Actuator Support	1	2024-T42 Clad	0.080	–	Replace
	2310620	• Door Panel Support	1	2024-T42 Clad	0.040	–	Replace
4	2310620	• Hinge Assy.	1	–	–	–	Replace
	2310620	• • Hinge	1	MS20001Y4-4000	–	–	Replace
	2310620	• • Pin	1	MS20001Y4-3900	–	–	Replace
5	2310620	• Retainer	1	2024-T42 Clad	0.032	–	Replace
6	2310620	• Deflector	1	2024-T42 Clad	0.032	–	Replace

CODES **EFFECTIVITIES**

1 23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

Nose Landing Gear Door Structure Repair Index
Figure 1 (Sheet 2 of 2)

NOSE LANDING GEAR DOOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the nose landing gear door, structure assembly or door hinges is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

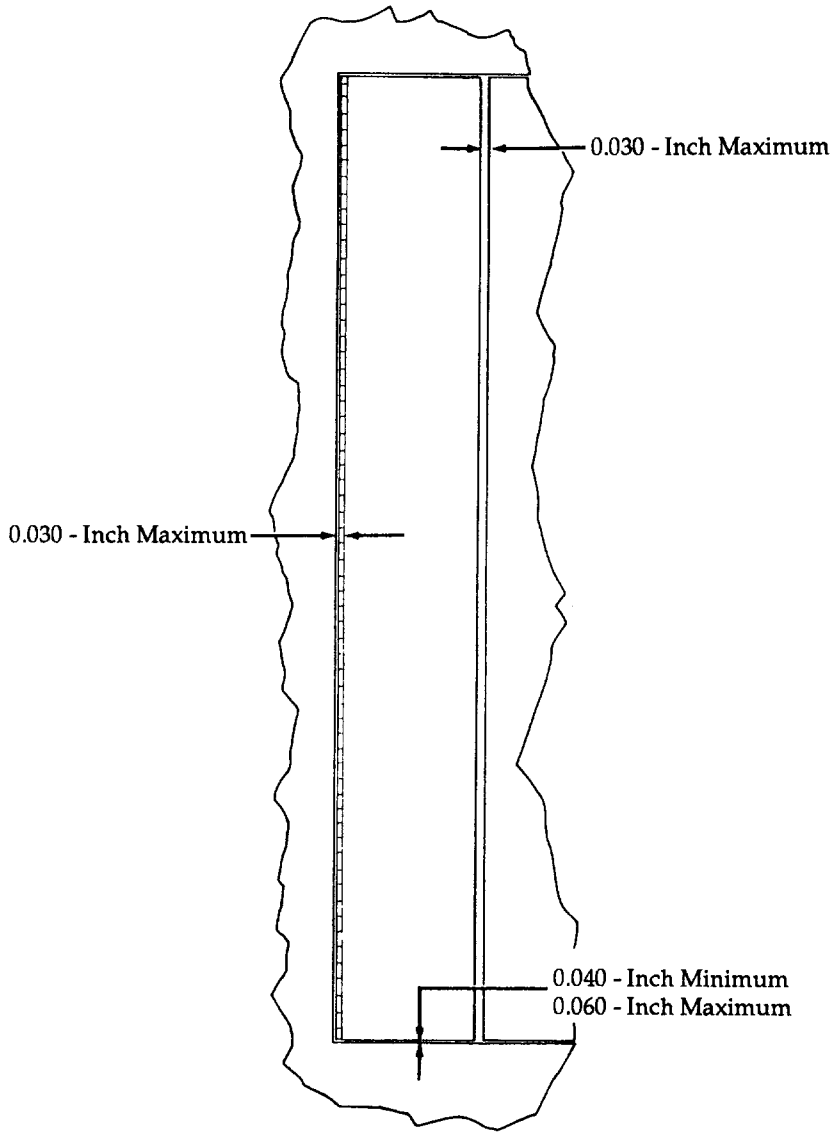
Allowable Material Thickness
Figure 101

NOSE LANDING GEAR DOOR - REPAIR

1. APPROVED REPAIRS

NOTE: All dimensions are in inches unless otherwise specified.

A. Refer to Chapter 51 for typical repairs for the nose landing gear door structure.
B. Refer to the basic Learjet Maintenance Manual, Chapter 32, for repairs and maintenance procedures for nose landing gear door components such as door seals and door latch mechanism.
C. See Figure 201 for nose landing gear door skin gap tolerances.



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6-46B

Nose Landing Gear Door Skin Gap Tolerances
Figure 201

CHAPTER

53

FUSELAGE

STRUCTURAL REPAIR MANUAL

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Nose Assembly Repair Index - (*Model 23 Aircraft and Early Model 24 Series Aircraft*)	53-10-00	2
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FUSELAGE FRAMES - REPAIR	53-21-00	
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Allowable Damage Limits	53-24-00	101
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FUSELAGE INSTRUMENT PANEL SUPPORT STRUCTURE - REPAIR	53-25-00	
Approved Repairs	53-25-00	201
FUSELAGE CIRCUIT BREAKER PANEL SUPPORT STRUCTURE - STRUCTURAL IDENTIFICATION	53-26-00	
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FUSELAGE CIRCUIT BREAKER PANEL SUPPORT STRUCTURE - ALLOWABLE DAMAGE	53-26-00	
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Learjet

STRUCTURAL REPAIR MANUAL

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FUSELAGE - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE: The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. The fuselage main frame is constructed of frames, stringers, keelbeams, longerons, a forward and aft pressure bulkhead and frames around openings.

B. Located between frame 1 and frame 34 are transverse frames spaced approximately 3.5 to 17 inches apart. The tailcone contains canted frames for attachment of the vertical stabilizer. Cutouts are located around the perimeter of the frames for stringer clearance. Frames 2 and 4 terminate where they meet the nose wheel well. Frame 3 terminates where it meets the nose compartment access door opening and the nose wheel well. Frames 6 through 8 terminate where they meet the windshield. Frame 11, and frame 12 (*on aircraft equipped with 36" passenger/crew door*), terminate where they meet the passenger/crew door. Frames 16 through 21 terminate when the lower end meets a longeron where the wing passes through the fuselage.

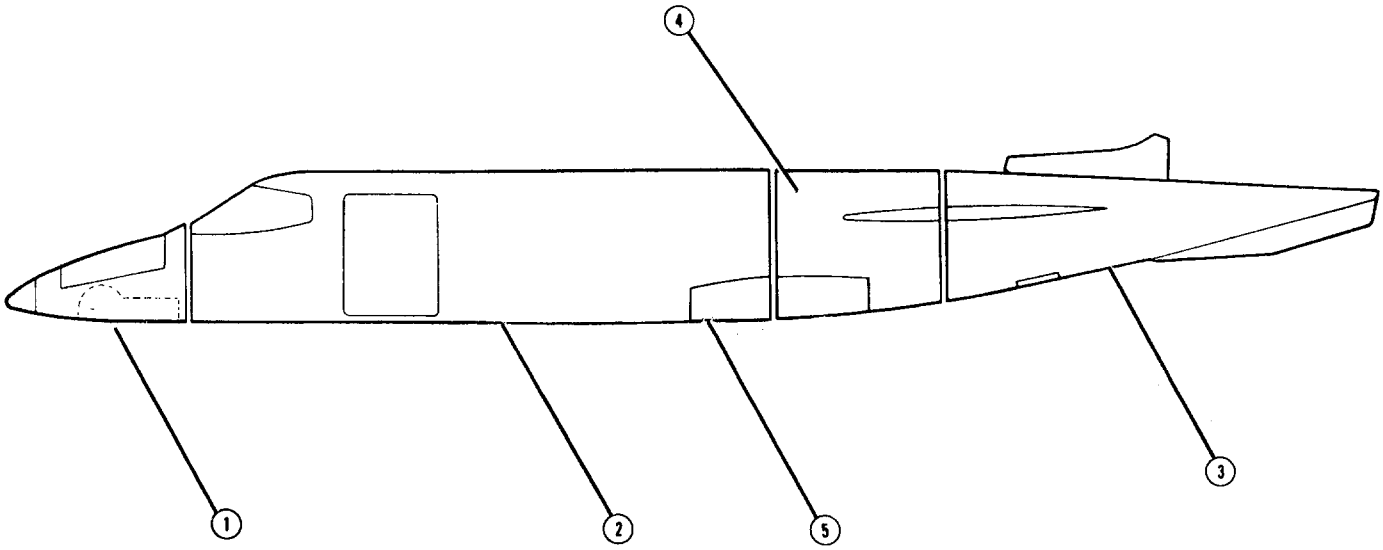
C. Longitudinal stringers are located around the perimeter of the frames, and are spaced approximately 5 inches apart. The stringers are aluminum extrusions cut to various lengths.

D. The forward, underwing and aft keelbeam assemblies, located along the bottom side of the aircraft, provide a major structural component used to complete the fuselage structure when the wing assembly is installed. The keelbeams also provide housings for fuel and hydraulic lines and control cables. Fuselage frames are interrupted at the keel and are continued through the keel by webs. The floorboards are secured on top of the forward keelbeam and become a part of the aircraft structure. Access covers, located along the bottom side of the keelbeams, form a smooth aerodynamic surface on the bottom side of the aircraft. Refer to Chapter 51 for forward, underwing and aft keelbeam station locations. Refer to 53-50-00 for keelbeam Master Repair Indexes.

E. A longeron extends longitudinally down each side of the fuselage at the point where the fuselage and wing intersect.

F. A forward and an aft pressure bulkhead are installed in the aircraft. The forward pressure bulkhead is located at frame 5, the aft pressure bulkhead location will vary depending upon aircraft model and fuel system configuration. Refer to Chapter 51 for forward and aft pressure bulkhead locations.

Item	Description	Chapter/ Section/ Subject
1	Nose Assembly	53-10-00
2	Fuselage Assembly	53-20-00
3	Tailcone Assembly	53-30-00
4	Fuselage Fuel Tank Assembly	53-40-00
5	Keelbeam Assemblies	53-50-00



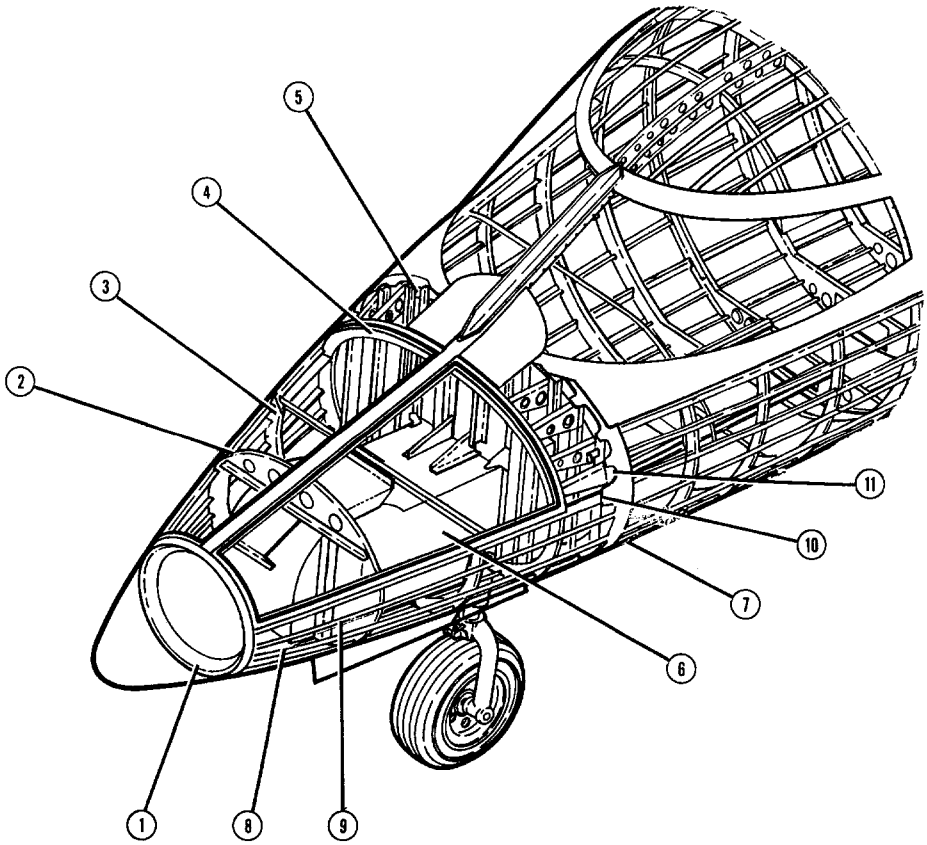
(TYPICAL)

Fuselage Structure Master Repair Index
Figure 1

NOSE ASSEMBLY - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The nose assembly consists of the structure assembly from frame one to and including frame 5. The structure consists of five (5) major bulkhead assemblies, stringers, minor structural subassemblies, and skins.
   B. The nose assembly provides mounting provisions for various avionics and radio equipment, various aircraft systems, and storage for the nose landing gear when retracted. Two nose access doors are incorporated to provide the aerodynamic configuration and protection of the equipment installed within the nose assembly. Two nose wheel doors complete the aerodynamic configuration on the lower side of the nose assembly and also provides protection for the nose gear. (Refer to Chapter 52 for additional information pertaining to nose doors.)

NOSE ASSEMBLY - STRUCTURAL IDENTIFICATION



(TYPICAL)

14-194C

Nose Assembly Repair Index
Figure 1 (Sheet 1 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311000	Nose Assembly, Fuselage	–	–	–	–	–
1	2311010	• Bulkhead Instl., Frame No. 1	–	–	–	–	–
	2311010	• • Flange Ring (2 ea.)	1	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Zee Clip	2	2024T42 Clad	0.080	F4-1	Replace
	2311010	• • Bracket	2	2024T42 Clad	0.050	F4-1	Replace
	2311010	• • Support Angle (2 ea.)	2	S-549	–	–	Replace
	2311010	• • Angle	1	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Channel (2 ea.)	1	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Support (2 ea.)	2	S-633	–	–	–
	2311010	• • Support	3	S-633	–	–	–
	2311010	• • Brace	3	S-591	–	–	–
2	2311020	• Bulkhead Instl., Frame No. 2	1	–	–	–	–
	2311020	• • Reinforcement Angle (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311020	• • Stiffener (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311020	• • Gusset	1	2024-T42 Clad	0.040	–	Replace
	2311020	• • Bracket (2 ea.)	4	2024-T42 Clad	0.040	–	Replace
	2311020	• • Frame Web (2 ea.)	1	2024-T42 Clad	0.040	–	51-70-04
	S151-1	• • Clip (4 ea.)	1	2024-T42 Clad	0.040	–	Replace
3	2311030	• Bulkhead Instl., Frame No. 3	1	–	–	–	–
	2311030	• • Gusset	5	2024-T3 Clad	0.040	–	Replace
	2311030	• • Gusset (2 ea.)	6	2024-T3 Clad	0.040	–	Replace
	2311030	• • Frame Web (2 ea.)	1	2024-T42 Clad	0.032	–	51-70-04
	2311030	• • Clip	1	2024-T3 Clad	0.032	–	Replace
	2311030	• • Connecting Plate	1	2024-T3 Clad	0.032	–	Replace
	2311030	• • Angle	1	2024-T3 Clad	0.040	–	Replace
4	2311040	• Bulkhead Instl., Frame No. 4	1	–	–	–	–
	2311040	• • Frame Web (2 ea.)	1	2024-T42 Clad	0.040	–	51-70-04
	2311040	• • Connecting Angle	1	2024-T42 Clad	0.063	–	Replace
	2311040	• • Bracket	8	2024-T3 Clad	0.032	–	Replace
	2311030	• • Angle	5	2024-T42 Clad	0.040	–	Replace
	2311030	• • Filler	7	2024-T3 Clad	0.040	–	Replace
	2311030	• • Gusset	5	2024-T3 Clad	0.040	–	Replace
	2311030	• • Gusset (2 ea.)	6	2024-T3 Clad	0.040	–	Replace
	2311040	• • Splice Angle	1	2024-T42 Clad	0.040	–	Replace
	2311040	• • Channel (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
5	2311050	• Bulkhead Instl., Frame No. 5	11	–	–	–	–
	2411050	• • Doubler (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2310525	• • Support Instl., LH & RH	1	–	–	–	Replace
	2310525	• • • Support Web	1	2024-T42 Clad	0.032	–	Replace
	2310525	• • • Angle	1	2024-T42 Clad	0.032	–	Replace
	2310526	• • Support Instl., LH & RH	1	–	–	–	–
	2310526	• • • Support	1	2024-T42 Clad	0.032	–	Replace

Nose Assembly Repair Index
Figure 1 (Sheet 2 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2310527	• • Support Instl., LH & RH	1	–	–	–	–
	2310527	• • • Support (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2310533	• • Support Instl., LH & RH	1	–	–	–	–
	2310533	• • • Support	1	2024-T42 Clad	0.040	–	Replace
	2310531	• • Support Instl., LH & RH	9	–	–	–	–
	2310531	• • • Support Webb	9	2024-T42 Clad	0.040	–	Replace
	2310538	• • Support Instl., LH & RH	4	–	–	–	–
	2310538	• • • Support Web	4	2024-T42 Clad	0.040	F4-1	Replace
	2311267	• • Segment Instl.	4	–	–	–	–
	2311267	• • • Support	4	2024-T42 Clad	0.063	–	Replace
	2511229	• • • Support	4	2024-T42 Clad	0.063	–	Replace
	2310533	• • Angle Instl., LH & RH	1	–	–	–	–
	2311575	• • Support Instl., LH & RH	1	–	–	–	–
	2311575	• • • Support	1	2024-T42 Clad	0.040	–	Replace
	2311577	• • Support Instl., LH & RH	1	–	–	–	–
	2311577	• • • Support	1	2024-T42 Clad	0.080	–	Replace
	2311583	• • Support Instl., LH & RH	1	–	–	–	–
	2311583	• • • Support (8 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2311050	• • Safety Band	1	2024-T3 Clad	0.063	–	Replace
	2311574	• • Support Angle	4	2024-T42 Clad	0.040	F4-1	Replace
	2311581	• • Frame Piece Instl.	1	–	–	–	–
	2311581	• • • Frame	1	2024-T42 Clad	0.040	–	Replace
	2311584	• • Stiffener, LH & RH	1	Casting	–	–	–
	2311580	• • Bearing Assy., LH & RH	1	2024-T42	0.040	–	Replace
	2310521	• • Support Instl., LH & RH	1	–	–	–	–
	2310521	• • • Support	1	2024-T42 Clad	0.071	–	Replace
	2310521	• • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2310522	• • Support Instl., LH & RH	1	–	–	–	–
	2310522	• • • Support	1	2024-T42 Clad	0.071	–	Replace
	2310522	• • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2310523	• • Washer (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2310537	• • Support Instl., Nose Gear	4	–	–	–	–
	2310532	• • Support Instl., Nose Gear	9	–	–	–	–
	2310537	• • • Support Angle (3 ea.)	4	2024-T24 Clad	0.080	–	Replace
	2310532	• • • Support Angle (2 ea.)	1	2024-T24 Clad	0.063	–	Replace
	2310532	• • • Channel	1	2024-T24 Clad	0.063	–	Replace
	2310532	• • • Angle (2 ea.)	9	2024-T24 Clad	0.080	–	Replace
	2310537	• • • Web	1	2024-T24 Clad	0.080	–	Replace
	2311579	• • Fitting, Nose Wheel Actuator	1	Casting	–	–	51-71-00
	2310509	• • Channel Instl., LH & RH	1	–	–	–	–
	2310509	• • • Channel	1	2024-T42 Clad	0.032	–	Replace
	2310510	• • Channel Instl., LH & RH	1	–	–	–	–
	2310510	• • • Channel	1	2024-T42 Clad	0.071	–	Replace
	2310510	• • • Angle	1	2024-T42 Clad	0.071	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2310513	• • Horizontal Beam Instl.	11	–	–	–	–
	2310513	• • • "I" Beam	11	S-642	–	F4-1	Replace
	2310513	• • • Plate	11	2024-T42 Clad	0.071	F4-1	Replace
	2310511	• • • Clip	11	2024-T42	0.063	–	Replace
	2310514	• • Doubler Assy., LH & RH	13	–	–	–	–
	2310514	• • • Doubler	13	2024-T42 Clad	0.063	F4-1	Replace
	2310514	• • • Filler	13	2024-T3 Clad	0.050	F4-1	Replace
	2310514	• • • Channel	13	2024-T3 Clad	0.063	F4-1	Replace
	2311583	• • Beam Instl.	1	–	–	–	–
	2311583	• • • Channel, Upper (2 ea.)	1	4130 Steel	0.080	F8-1	Replace
	2311583	• • • Channel, Lower (2 ea.)	1	4130 Steel	0.080	F8-1	Replace
	2311583	• • • Splice Plate	1	4130 Steel	0.080	F8-1	Replace
	2311583	• • • Support Tee (2 ea.)	1	S-566	–	–	–
	2311667	• • Bulkhead Beam Instl., LH & RH	15	–	–	–	–
	2311667	• • • Beam Assy.	15	–	–	–	Replace
	2311667	• • • • Beam	15	S-630	–	–	Replace
	2311667	• • • • Clip	15	S-571	–	–	Replace
	2311668	• • Bulkhead Beam Instl., LH & RH	15	–	–	–	–
	2311668	• • • Beam	15	S-630	–	F4-1	Replace
	2311669	• • Bulkhead Beam Instl., LH & RH	15	–	–	–	–
	2311669	• • • Beam	15	S-630	–	F4-1	Replace
	2310505	• • Bulkhead Beam Instl.	1	–	–	–	–
	2310505	• • • Beam Assy., LH & RH	1	–	–	–	Replace
	2310505	• • • • Channel (2 ea.)	1	2024-T42 Clad	0.080	F4-1	Replace
	2310505	• • • • Splice Plate	1	2024-T3 Clad	0.032	F4-1	Replace
	2310505	• • • • Clip	1	2024-T42 Clad	0.040	F4-1	Replace
	2310506	• • Bulkhead Beam Instl.	14	–	–	–	–
	2310506	• • • Beam Assy., LH & RH	14	–	–	–	Replace
	2310506	• • • • Channel	14	2024-T42 Clad	0.032	F4-1	Replace
	2310506	• • • • Splice Plate	14	2024-T3 Clad	0.032	F4-1	Replace
	2310507	• • Bulkhead Beam Instl.	14	–	–	–	–
	2310507	• • • Beam Assy., LH & RH	14	–	–	–	Replace
	2310507	• • • • Channel (2 ea.)	14	2024-T42 Clad	0.032	F4-1	Replace
	2310507	• • • • Splice Plate	14	2024-T3 Clad	0.032	F4-1	Replace
	2310508	• • Bulkhead Beam Instl.	14	–	–	–	–
	2310508	• • • Beam Assy., LH & RH	14	–	–	–	Replace
	2310508	• • • • Channel (2 ea.)	14	2024-T42 Clad	0.032	F4-1	Replace
	2310508	• • • • Splice Plate	14	2024-T3 Clad	0.032	F4-1	Replace
	2311059	• • Frame Piece	9	6061-T6 Clad	0.063	F4-1	Replace
	2311050	• • Web	1	2024-T3 Clad	0.032	F4-1	Replace
	2311050	• • Splice Plate (2 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2311050	• • Doubler	1	2024-T3 Clad	0.125	F4-1	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311050	• • Doubler Assy.	1	–	–	–	–
	2311050	• • • Doubler	1	2024-T42 Clad	0.050	F4-1	Replace
	2311050	• • Angle	1	2024-T3 Clad	0.080	F4-1	Replace
	2311050	• • Splice Angle (2 ea.)	20	2024-T3 Clad	0.050	F4-1	Replace
	2311050	• • Angle (4 ea.)	10	S-545	–	–	–
	2311050	• • Reinforcement	16	2024-T3 Clad	0.071	F4-1	Replace
	2311050	• • Reinforcement	17	2024-T3 Clad	0.100	F4-1	Replace
	2311050	• • Filler (2 ea.)	14	2024-T3 Clad	0.032	F4-1	Replace
	2311050	• • Filler (2 ea.)	15	2024-T3 Clad	0.050	F4-1	Replace
	2311050	• • Plate	19	2024-T3 Clad	0.063	F4-1	Replace
	2311050	• • Shim, Laminated	18	▽1	0.062	–	Replace
6	2311250	• Nose Wheel Box Instl.	1	–	–	–	–
	2311250	• • Channel (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Angle (6 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2311250	• • Bulkhead Segment	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Support Angle (2 ea.)	1	S-549	–	–	Replace
	2311250	• • Seal Angle	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Seal (Fwd)	1	S-306	–	–	Replace
	2311250	• • Reinforcement Angle	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Top Plate (Fwd)	1	2024-T3 Clad	0.032	–	Replace
	2311250	• • Top Plate (Aft)	1	2024-T3 Clad	0.032	–	Replace
	2311250	• • Pan, LH & RH (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Reinforcement Plate	1	2024-T3 Clad	0.050	–	Replace
	2311250	• • End Plate	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Aft Side Plate, LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Clip	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Bracket Assy.	1	–	–	–	–
	2311250	• • • Bracket (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2311250	• • Gusset (4 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Support	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Angle (2 ea.)	1	S-512	–	–	Replace
	2311250	• • Angle (5 ea.)	1	S-571	–	–	Replace
	2311250	• • Filler	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Support Channel (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Pan (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Cover (6 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Clip	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Doubler	1	2024-T42 Clad	0.062	–	Replace
	2311250	• • Hinge Half	1	MS20001V4	–	–	Replace
	2311250	• • Channel, LH & RH	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Aft Top Plate, RH	1	2024-T42 Clad	0.032	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311250	• • Side Plate (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Side Plate, LH	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2311250	• • Angle	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Shim	1	2024-T3 Clad	0.040	–	Replace
	2317031	• • Angle	1	2024-T42 Clad	0.050	F4-1	Replace
	2317031	• • Clip	1	2024-T42 Clad	0.050	F4-1	Replace
	2310612	• Doubler (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2310612	• Bracket Assy.	1	–	–	–	–
	2311500	• Skin, LH & RH	11	2024-T42 Clad	0.032	–	51-70-02
	2411001	• Skin, LH & RH	12	2024-T42 Clad	0.032	–	51-70-02
	2310720	• Bracket Instl., RH	1	–	–	–	–
	2310720	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2311450	• Nose Equip. Access Door Instl.	1	–	–	–	–
	2311450	• • Splice, Plate (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2311450	• • Stiffener	1	S-522	–	–	Replace
	2311450	• • Splice Plate	1	2024-T3 Clad	0.050	–	Replace
	2311450	• • Lip, Lower (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311450	• • Hat Section	1	2024-T42 Clad	0.050	–	Replace
	2311450	• • Door Assy.	1	–	–	–	–
		(Refer to Chapter 52)	1	–	–	–	–
	2311000	• Channel	4	2024-T42 Clad	0.050	–	Replace
7	2311000	• Stringer, No. 19 LH & RH	1	S-554	–	–	51-70-04
8	2311000	• Stringer, No. 17 LH & RH	1	S-554	–	–	51-70-04
	2311000	• Stringer, No. 16 LH & RH	1	S-554	–	–	51-70-04
9	2311000	• Stringer, No. 14 LH & RH	1	S-554	–	–	51-70-04
	2311000	• Stringer, No. 13 LH & RH	1	S-522	–	–	51-70-04
	2311000	• Stringer, No. 12 LH & RH	1	S-554	–	–	51-70-04
	2311000	• Stringer, No. 18 LH & RH	1	S-554	–	–	51-70-04
10	2311000	• Stringer, No. 11 LH & RH	1	S-566	–	–	51-70-04
11	2311000	• Stringer, No. 10 LH & RH	1	S-554	–	–	51-70-04
	2311000	• Stringer, No. 15 LH & RH	14	S-566	–	–	51-70-04
	2311000	• Stringer, No. 15 LH & RH	15	S-554	–	–	51-70-04

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Figure 1 (Sheet 6 of 7)

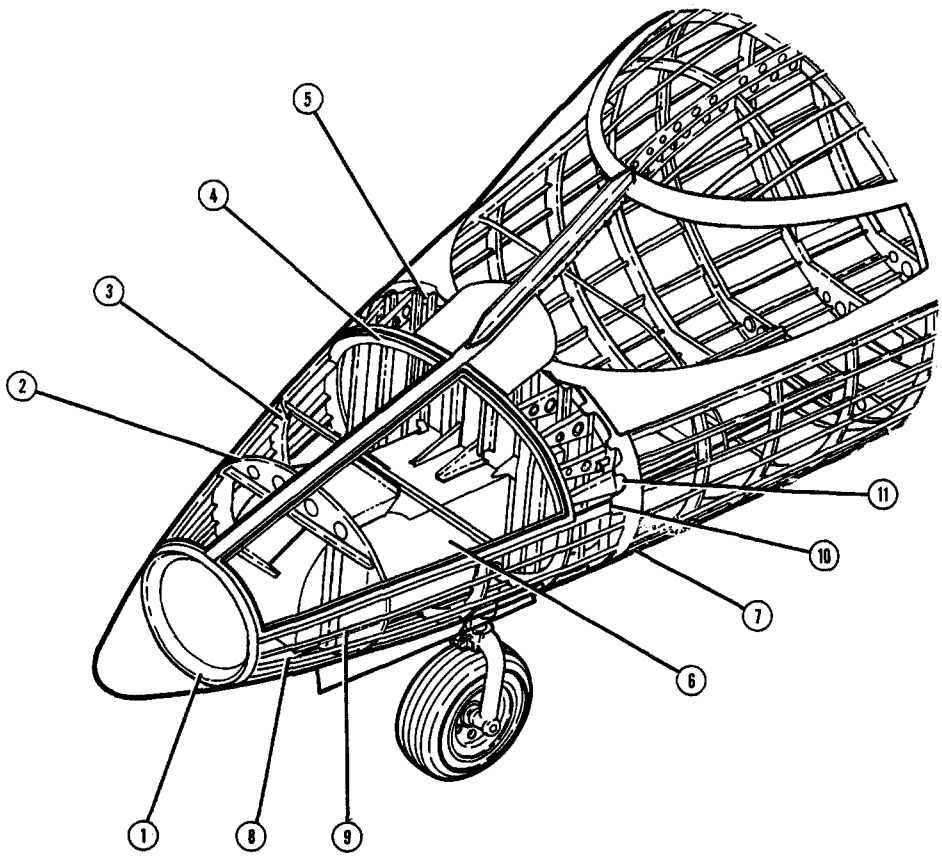
CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218
2	23-002 THRU 23-099; 24-146 THRU 24-229, EXECPT 24-218
3	23-002 THRU 23-014
4	24-100 THRU 24-229, EXCEPT 24-218
5	23-002 THRU 23-099; 24-100 THRU 24-145
6	24-146 THRU 24-229, EXCEPT 24-218
7	23-015 THRU 23-099; 24-100 THRU 24-124
8	24-122, 24-123, 24-140 THRU 24-229, EXCEPT 24-218
9	23-002 THRU 23-099
10	23-015 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218
11	23-002 THRU 23-099; 24-100 THRU 24-119
12	24-120 THRU 24-229, EXCEPT 24-218
13	24-150 THRU 24-229, EXCEPT 24-218
14	23-002 THRU 23-029
15	23-030 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218
16	23-002 THRU 23-009
17	23-010 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218
18	23-002 THRU 23-069
19	23-070 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218
20	24-100 THRU 24-129

NOTES:

1. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

Nose Assembly Repair Index
Figure 1 (Sheet 7 of 7)

NOSE ASSEMBLY - STRUCTURAL IDENTIFICATION



(TYPICAL)

14-194C

Nose Assembly Repair Index
Figure 2 (Sheet 1 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511500	Nose Assembly, Fuselage	–	–	–	–	–
1	2311010	• Bulkhead Instl., Frame No. 1	–	–	–	–	–
	2311010	• • Flange Ring (2 ea.)	1	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Zee	2	2024T42 Clad	0.080	F4-1	Replace
	2418119	• • Zee	3	2024T42 Clad	0.080	F4-1	Replace
	2311010	• • Bracket	2	2024T42 Clad	0.050	F4-1	Replace
	2418119	• • Support	3	2024T42 Clad	0.063	F4-1	Replace
	2311010	• • Doubler Plate	2	2024T3 Clad	0.050	F4-1	Replace
	2418119	• • Zee	3	2024T42 Clad	0.063	F4-1	Replace
	2311010	• • Support Angle (2 ea.)	2	S-549	–	–	Replace
	2311010	• • Angle (2 ea.)	4	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Channel	4	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Frame	5	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Flange Door Seal (2 ea.)	5	2024T42 Clad	0.040	F4-1	Replace
	2311010	• • Support Angle	6	S-633	–	–	–
	2311010	• • Support Angle	3	S-633	–	–	–
	2311010	• • Support Angle	7	S-591	–	–	–
	2418120	• • Channel Assy. (2 ea.)	8	S-556	–	–	–
	2418120	• • Channel Assy. (2 ea.)	3	2024T42 Clad	0.063	F4-1	Replace
2	2311020	• Bulkhead Instl., Frame No. 2	1	–	–	–	–
	2311020	• • Reinforcement Angle (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311020	• • Stiffener	1	2024-T3 Clad	0.040	–	Replace
	2311020	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
	2311020	• • Gusset	1	2024-T42 Clad	0.040	–	Replace
	2311020	• • Frame Web (2 ea.)	1	2024-T42 Clad	0.040	–	51-70-04
	S151-1	• • Clip (6 ea.)	9	2024-T42 Clad	0.040	–	Replace
3	2311030	• Bulkhead Instl., Frame No. 3	1	–	–	–	–
	2311030	• • Gusset	1	2024-T3 Clad	0.040	–	Replace
	2311030	• • Frame Web	1	2024-T42 Clad	0.032	–	51-70-04
4	2311040	• Bulkhead Instl., Frame No. 4	1	–	–	–	–
	2311040	• • Frame Web (2 ea.)	1	2024-T42 Clad	0.040	–	51-70-04
	2311040	• • Connecting Angle	1	2024-T42 Clad	0.063	–	Replace
	2311040	• • Bracket	1	2024-T3 Clad	0.032	–	Replace
	2311030	• • Gusset	10	2024-T3 Clad	0.040	–	Replace
	2311040	• • Splice Angle (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311040	• • Channel (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
5	2311050	• Bulkhead Instl., Frame No. 5	11	–	–	–	–
	2411050	• Bulkhead Instl., Frame No. 5	12	–	–	–	–
	2411050	• • Doubler (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2310525	• • Support Instl., LH & RH	1	–	–	–	Replace
	2310525	• • • Support Web	1	2024-T42 Clad	0.032	–	Replace
	2310525	• • • Angle	1	2024-T42 Clad	0.032	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2310526	• • Support Instl., LH & RH	1	–	–	–	–
	2310526	• • • Support	1	2024-T42 Clad	0.032	–	Replace
	2310527	• • Support Instl., LH & RH	1	–	–	–	–
	2310527	• • • Support (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2310533	• • Support Instl., LH & RH	1	–	–	–	–
	2310533	• • • Support	1	2024-T42 Clad	0.040	–	Replace
	2310538	• • Support Instl., LH & RH	1	–	–	–	–
	2310538	• • • Support Web	1	2024-T42 Clad	0.032	–	Replace
	2311267	• • Segment Instl.	1	–	–	–	–
	2311267	• • • Support	13	2024-T42 Clad	0.063	–	Replace
	2511229	• • • Support	14	2024-T42 Clad	0.063	–	Replace
	2311575	• • Support Instl., LH & RH	1	–	–	–	–
	2311575	• • • Support	1	2024-T42 Clad	0.040	–	Replace
	2411577	• • Support Instl., LH & RH	1	–	–	–	–
	2411577	• • • Support	1	2024-T42 Clad	0.080	–	Replace
	2411583	• • Support Instl., LH & RH	1	–	–	–	–
	2311583	• • • Support (8 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2411052	• • Support Plate (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2411052	• • Angle (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2411058	• • Safety Band	1	2024-T3 Clad	0.063	–	Replace
	2411574	• • Support Angle	1	2024-T42 Clad	0.040	–	Replace
	2411581	• • Frame Center Piece Instl.	1	–	–	–	–
	2411521	• • • Frame	1	2024-T42 Clad	0.040	–	Replace
	2411584	• • Stiffener, LH & RH	1	Casting	–	–	–
	2311580	• • Bearing Assy.	1	2024-T42 Clad	0.040	–	Replace
	2488296	• • Doubler	1	2024-T42 Clad	0.040	–	Replace
	2311050	• Bulkhead Assy, Frame 5	11	–	–	–	–
	2411050	• Bulkhead Assy, Frame 5	12	–	–	–	–
	2411050	• • Bulkhead Frame Support	1	2024-T42 Clad	0.063	–	Replace
	2411050	• • Support Angle	1	2024-T42 Clad	0.080	–	Replace
	2310521	• • Support Instl., LH & RH	1	–	–	–	–
	2310521	• • • Support	1	2024-T42 Clad	0.071	–	Replace
	2310521	• • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2310522	• • Support Instl., LH & RH	1	–	–	–	–
	2310522	• • • Support	1	2024-T42 Clad	0.071	–	Replace
	2310522	• • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2310523	• • Washer (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2310537	• • Support Instl., Nose Gear	1	–	–	–	–
	2310537	• • • Support Angle (3 ea.)	1	2024-T24 Clad	0.080	–	Replace
	2310532	• • • Support Angle (2 ea.)	1	2024-T24 Clad	0.063	–	Replace
	2310532	• • • Channel	1	2024-T24 Clad	0.063	–	Replace
	2310537	• • • Web	1	2024-T24 Clad	0.080	–	Replace

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Figure 2 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411243	• • Fitting, Nose Wheel Actuator	1	–	–	–	51-71-00
	2410514	• • Channel Support	1	2024-T42 Clad	0.063	–	Replace
	2410509	• • Channel Instl., LH & RH	1	–	–	–	–
	2410509	• • • Channel	1	2024-T42 Clad	0.032	–	Replace
	2410510	• • Channel Instl., LH & RH	1	–	–	–	–
	2410510	• • • Channel	1	2024-T42 Clad	0.071	–	Replace
	2410510	• • • Angle	1	2024-T42 Clad	0.071	–	Replace
	2410513	• • Horizontal Beam Instl.	1	–	–	–	–
	2410513	• • • "I" Beam	1	S-642	–	F4-1	Replace
	2410513	• • • Plate	1	2024-T42 Clad	0.071	F4-1	Replace
	2410511	• • • Clip	1	2024-T42	0.063	–	Replace
	2410514	• • Support Pan	1	2024-T42 Clad	0.063	–	Replace
	2411051	• • Doubler Assy., LH & RH	1	–	–	–	–
	2411051	• • • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2411051	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2411053	• • Doubler	1	2024-T3 Clad	0.100	–	Replace
	2411054	• • Channel Assy.	1	–	–	–	–
	2411054	• • • Channel	1	2024-T3 Clad	0.040	–	Replace
	2411055	• • Bulkhead Beam Instl., LH & RH	1	–	–	–	–
	2411055	• • • Beam	1	S-630	–	F4-1	Replace
	2411055	• • • Support Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2411056	• • • Support Angle (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2411057	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2411057	• • Filler	1	2024-T3 Clad	0.050	–	Replace
	2411059	• • Filler	1	2024-T3 Clad	0.050	–	Replace
	2411059	• • Doubler	1	2024-T3 Clad	0.040	–	Replace
	2411059	• • Doubler	1	2024-T3 Clad	0.125	–	Replace
	2411061	• • Washer	1	S-610	–	F4-1	Replace
	2411582	• • Support Tee	1	S-566	–	F4-1	Replace
	2411583	• • Horizontal Beam Instl., LH & RH	1	–	–	–	–
	2411583	• • • Channel, Upper (2 ea.)	1	4130 Steel	0.080	F8-1	Replace
	2411583	• • • Channel, Lower (2 ea.)	1	4130 Steel	0.080	F8-1	Replace
	2411583	• • • Splice Plate	1	4130 Steel	0.080	F8-1	Replace
	2411667	• • Bulkhead Beam Instl., LH & RH	1	–	–	–	–
	2411667	• • • Beam	1	S-630	–	–	Replace
	2411667	• • • Clip	1	S-571	–	–	Replace
	2411668	• • Bulkhead Beam Instl., LH & RH	1	–	–	–	–
	2411668	• • • Beam	1	S-630	–	F4-1	Replace
	2411669	• • Bulkhead Beam Instl., LH & RH	1	–	–	–	–
	2411669	• • • Beam	1	S-630	–	F4-1	Replace
	2614023	• • Bracket	1	S-642	–	–	Replace
	2614023	• • Spacer	1	2024-T3 Clad	0.040	–	Replace

Nose Assembly Repair Index
Figure 2 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2618138	• • Gusset Assy.	1	–	–	–	–
	2618138	• • • Gusset	1	2024-T42 Clad	0.050	–	Replace
6	2311250	• Nose Wheel Box Instl.	1	–	–	–	–
	2311250	• • Channel (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Angle (6 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2311250	• • Bulkhead Segment	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Support Angle (2 ea.)	1	S-549	–	–	Replace
	2311250	• • Seal Angle	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Seal (Fwd)	1	S-306	–	–	Replace
	2311250	• • Reinforcement Angle	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Top Plate (Fwd)	1	2024-T3 Clad	0.032	–	Replace
	2311250	• • Top Plate (Aft)	1	2024-T3 Clad	0.032	–	Replace
	2311250	• • Pan, LH & RH (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Reinforcement Plate	1	2024-T3 Clad	0.050	–	Replace
	2311250	• • End Plate	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Aft Side Plate, LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Clip	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Bracket Assy.	1	–	–	–	–
	2311250	• • • Bracket (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2311250	• • Gusset (4 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Support	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Angle (2 ea.)	1	S-512	–	–	Replace
	2311250	• • Angle (5 ea.)	1	S-571	–	–	Replace
	2311250	• • Filler	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Support Channel (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Pan (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Cover	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Clip	1	2024-T42 Clad	0.050	–	Replace
	2311250	• • Doubler	1	2024-T42 Clad	0.062	–	Replace
	2311250	• • Hinge Half	1	MS20001V4	–	–	Replace
	2311250	• • Angle	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Channel LH & RH	1	2024-T42 Clad	0.040	–	Replace
	2311250	• • Aft Top Plate, RH	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Side Plate (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Side Plate, LH	1	2024-T42 Clad	0.032	–	Replace
	2311250	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2311250	• • Angle	1	2024-T3 Clad	0.040	–	Replace
	2311250	• • Shim	1	2024-T3 Clad	0.040	–	Replace
	2317031	• • Angle	1	2024-T42 Clad	0.050	F4-1	Replace
	2317031	• • Clip	1	2024-T42 Clad	0.050	F4-1	Replace

Nose Assembly Repair Index
Figure 2 (Sheet 5 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2317085	• • Nose Gear Safety Cam Instl.	1	–	–	–	–
	2317085	• • • Angle (2 ea.)	1	S-512	–	F4-1	Replace
	2317085	• • • Clip (2 ea.)	1	2024-T42 Clad	0.050	F4-1	Replace
	2317093	• • • Cam	1	2024-T3 Clad	0.125	–	Replace
	2411471	• • Pan	1	2024-T42 Clad	0.063	–	Replace
	2411471	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2488676	• • Mounting Bracket Instl.	1	–	–	–	–
	2488676	• • • Pan	1	2024-T3 Clad	0.040	–	Replace
	2488676	• • • Zee	1	2024-T3 Clad	0.040	–	Replace
	2310612	• Doubler (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2388366	• Doubler Instl.	19	–	–	–	–
	2388366	• • Doubler	19	2024-T42 Clad	0.050	–	Replace
	2688149	• Doubler	20	2024-T42 Clad	0.050	–	Replace
	2610612	• Bracket Assy.	17	–	–	–	–
	2610612	• Bracket Assy.	18	–	–	–	–
	2311500	• Skin, LH & RH	11	2024-T42 Clad	0.032	–	51-70-02
	2411001	• Skin, LH & RH	12	2024-T42 Clad	0.032	–	51-70-02
	2310720	• Bracket Instl., RH	1	–	–	–	–
	2310720	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2311450	• Nose Equip.: Access Door Instl.	1	–	–	–	–
	2311450	• • Splice, Plate (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2311450	• • Stiffener	1	S-522	–	–	Replace
	2311450	• • Splice Plate	1	2024-T3 Clad	0.050	–	Replace
	2311450	• • Lip, Lower (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311450	• • Hat Section	1	2024-T42 Clad	0.050	–	Replace
	2311450	• • Door Assy.	1	–	–	–	–
		(Refer to Chapter 52)	1	–	–	–	–
	2311000	• Channel	4	2024-T42 Clad	0.050	–	Replace
	2511500	• Channel	5	2024-T42 Clad	0.050	–	Replace
7	2511500	• Stringer, No. 19 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 19 LH & RH	11	S-554	–	–	51-70-04
	2511500	• Stringer, No. 18 LH & RH	12	S-554	–	–	51-70-04
8	2511500	• Stringer, No. 17 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 17 LH & RH	11	S-554	–	–	51-70-04
	2511500	• Stringer, No. 16 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 16 LH & RH	11	S-554	–	–	51-70-04
9	2511500	• Stringer, No. 14 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 14 LH & RH	11	S-554	–	–	51-70-04
	2511500	• Stringer, No. 13 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 13 LH & RH	11	S-522	–	–	51-70-04
	2511500	• Stringer, No. 12 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 12 LH & RH	11	S-554	–	–	51-70-04
	2511500	• Stringer, No. 18 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 18 LH & RH	11	S-554	–	–	51-70-04

Nose Assembly Repair Index
Figure 2 (Sheet 6 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
10	2511500	• Stringer, No. 11 LH	12	S-566	–	–	51-70-04
	2511500	• Stringer, No. 11 RH	12	S-544	–	–	51-70-04
	2311000	• Stringer, No. 11 LH & RH	11	S-566	–	–	51-70-04
11	2511500	• Stringer, No. 10 LH & RH	12	S-554	–	–	51-70-04
	2311000	• Stringer, No. 10 LH & RH	11	S-554	–	–	51-70-04
	2311000	• Stringer, No. 15 LH & RH	15	S-566	–	–	51-70-04
	2611130	• Stringer, No. 15 LH & RH	16	S-554	–	–	51-70-04
	2311000	• Stringer, No. 15 LH & RH	11	S-554	–	–	51-70-04

CODES	EFFECTIVITIES
1	24-218, 24-230 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	24-218, 24-230 THRU 24-248; 25-002 THRU 25-087
3	24-249 THRU 24-357; 25-088 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	25-002 THRU 25-066, EXCEPT 25-061
5	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
6	25-002 THRU 25-087
7	24-252 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
8	25-002 THRU 25-066, EXCEPT 25-061
9	24-350 THRU 24-357; 25-227 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
10	24-146 THRU 24-357; 25-227 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
11	24-218, 24-230 THRU 24-246; 25-061, 25-067 THRU 25-077
12	24-247 THRU 24-357; 25-061, 25-078 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
13	24-218, 24-230 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-001 THRU 35-624; 36-001 THRU 36-055
14	35-625 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
15	24-218, 24-230 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-001 THRU 35-504; 36-001 THRU 36-052
16	31-002 AND SUBSEQUENT; 35-505 AND SUBSEQUENT; 36-053 AND SUBSEQUENT
17	24-218, 24-230 THRU 24-357; 25-002 THRU 25-289; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-001 THRU 35-278; 36-001 THRU 36-044
18	25-290 THRU 25-373; 35-279 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
19	24-273 THRU 24-350; 25-061, 25-135 THRU 25-226; 35-001 THRU 35-124; 36-001 THRU 36-032
20	24-351 THRU 24-357; 25-227 THRU 25-373; 35-125 AND SUBSEQUENT; 36-033 AND SUBSEQUENT

Nose Assembly Repair Index
Figure 2 (Sheet 7 of 7)

NOSE ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the nose assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

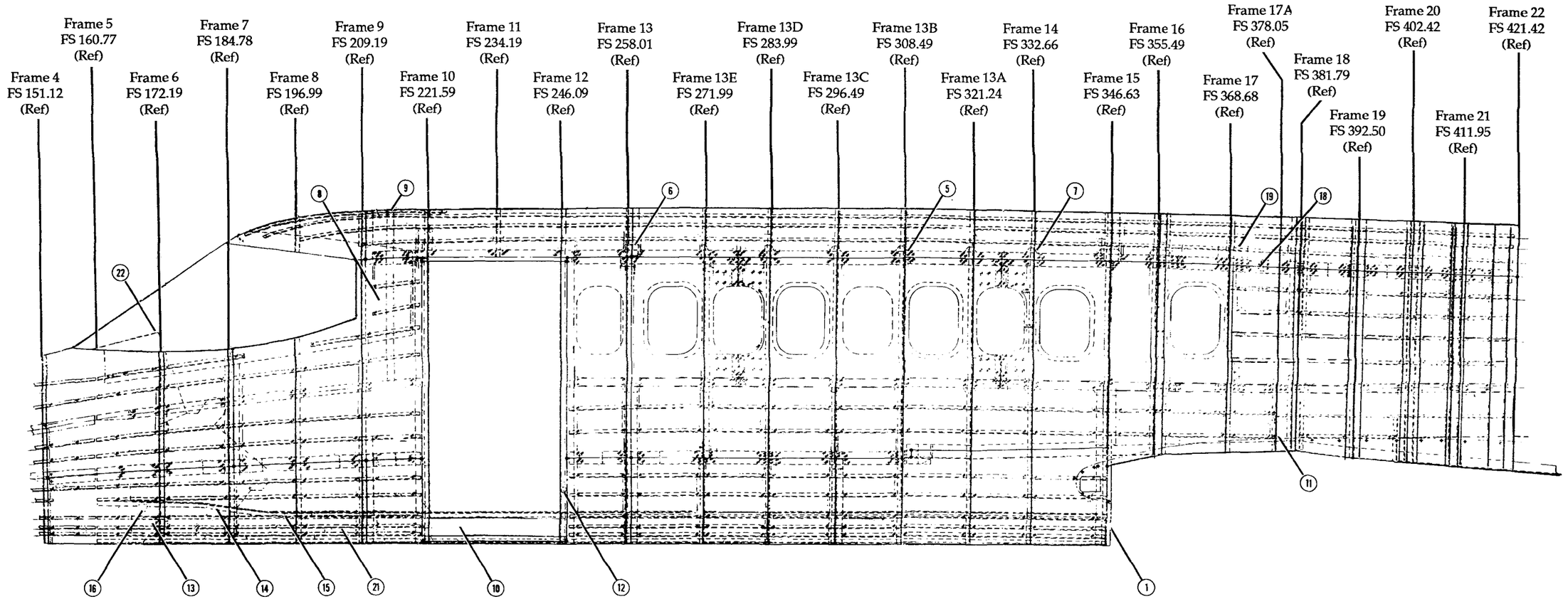
Allowable Material Thickness
Figure 101

NOSE ASSEMBLY - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE ASSEMBLY - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage assembly consists of the structural assemblies from frame 5 to frame 22. A forward and an aft pressure bulkhead are installed in the aircraft. The forward pressure bulkhead is located at frame 5, the aft pressure bulkhead location will vary depending upon aircraft model and fuel system configuration. Refer to Chapter 51 for forward and aft pressure bulkhead locations.

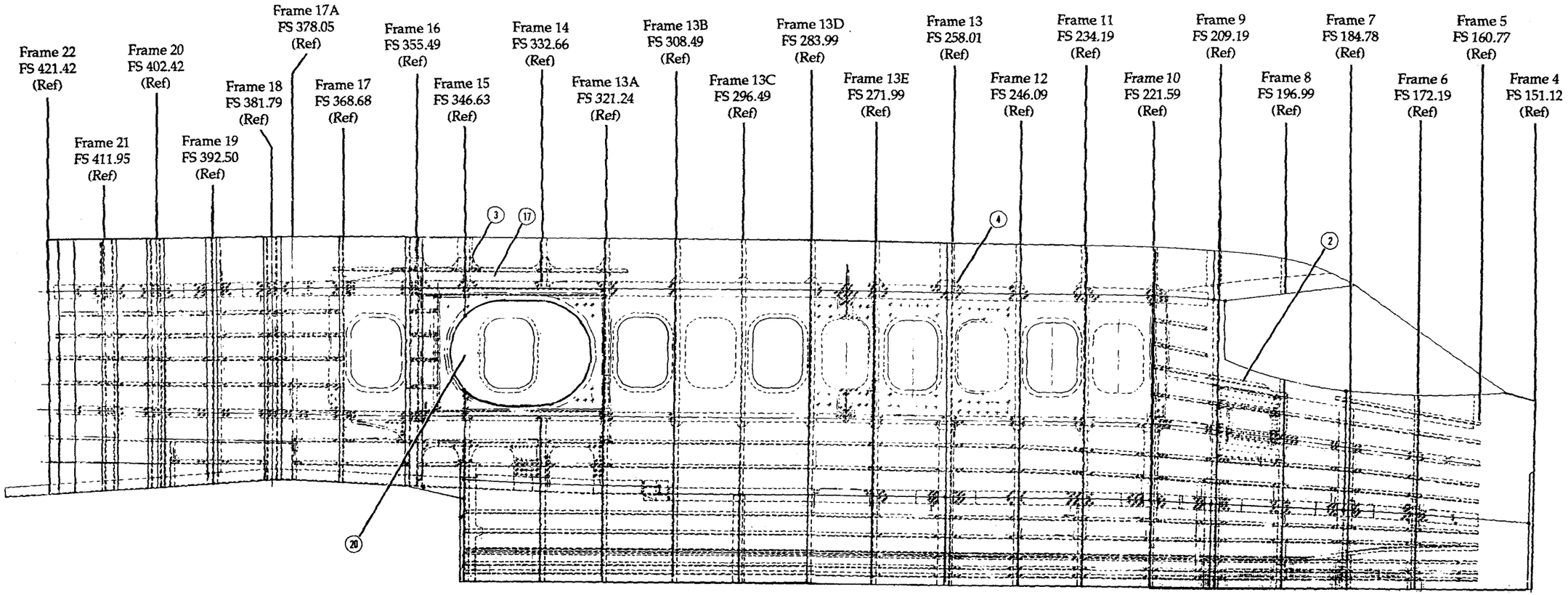


(VIEW LH SIDE LOOKING INBOARD)

(TYPICAL)

2-150D

Fuselage Assembly Repair Index
Figure 1 (Sheet 1 of 15)



(VIEW RH SIDE LOOKING INBOARD)

(TYPICAL)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611003	Fuselage Structure Assembly	1	–	–	–	–
	–	• Fuselage Frames Instl. (Refer to 53-21-00)	–	–	–	–	–
	–	• Fuselage Stringers Instl. (Refer to 53-22-00)	–	–	–	–	–
	–	• Fuselage Windshield Instl. (Refer to 53-24-00)	–	–	–	–	–
	–	• Fuselage Instrument Panel Structure Instl. (Refer to 53-25-00)	–	–	–	–	–
	–	• Fuselage Circuit Breaker Panel Structure Instl. (Refer to 53-26-00)	–	–	–	–	–
	–	• Fuselage Skins Instl. (Refer to 53-28-00)	–	–	–	–	–
	–	• Fuselage Keelbeam Assemblies (Refer to 53-50-00)	–	–	–	–	–
1	2311150	• Bulkhead Instl. (Frame 15)	1	–	–	–	–
	2311150	• • Stiffener, Center	1	S-554	–	–	Replace
	2311150	• • Stiffener, LH & RH (5 ea.)	1	S-554	–	–	Replace
	2311150	• • Angle, Support	1	S-565	–	–	Replace
	2311150	• • Frame Web	1	2024-T42 Clad	0.050	–	Replace
	2311150	• • Stiffener	1	2024-T42 Clad	0.063	–	Replace
	2311150	• • Strap (4 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311153	• • Strap (2 ea.)	1	2024-T3 Clad	0.120	–	Replace
	2311154	• • Strap, Outer	1	4130 Steel	0.080	F8-1	Replace
	2311155	• • Strap, Outer	1	4130 Steel	0.063	F8-1	Replace
	2311153	• • Fitting, Longeron	1	–	–	–	Replace
	2311150	• • Safety Band (2 ea.)	1	2024-T42	0.025	–	Replace
	2311150	• • Shim (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2311150	• • Plate	1	2024-T3 Clad	0.032	–	Replace
	2311150	• • Stiffener, LH & RH	1	2024-T42 Clad	0.080	–	Replace
	2311150	• • Safety Band	1	2024-T3 Clad	0.063	–	Replace
	2311150	• • Shim, Laminated (Max. 0.032)	1	1	–	–	–
	2311150	• • Web Assy.	2	–	–	–	–
	2311150	• • • Web	2	2024-T3 Clad	0.040	–	Replace
	2311150	• • Web Assy.	3	–	–	–	–
	2311150	• • • Web	3	2024-T3 Clad	0.040	–	Replace
	2311150	• • Stiffener (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2311151	• • Fitting	1	2024-T42 Clad	1.250	–	Replace
2	2618326	• Doubler, RH Side Only	4	2024-T3 Clad	0.025	–	Replace
3	2511321	• Skin Doubler, Escape Hatch	1	2024-T42 Clad	0.080	–	Replace

Fuselage Assembly Repair Index
Figure 1 (Sheet 3 of 15)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
4	2511330	• Window Doubler, RH Aft	1	2024-T42 Clad	0.063	–	Replace
5	2611330	• Window Doubler, RH Fwd	1	2024-T42 Clad	0.063	–	Replace
6	2611330	• Window Doubler, LH Fwd	1	2024-T42 Clad	0.063	–	Replace
7	2611330	• Window Doubler, LH Aft	5	2024-T42 Clad	0.063	–	Replace
	2511000	• Splice Band (4 ea.)	1	2024-T42 Clad	0.063	–	Replace
8	2511295	• Inner Skin Instl., Door Frame	1	–	–	–	–
	2311479	• • Stiffener (8)	1	2024-T42 Clad	0.040	–	Replace
	2511314	• • Clip (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511314	• • Stiffener (7 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311479	• • Clip (4 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311479	• • Clip (3 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311479	• • Flex Conduit	1	2	–	–	Replace
	2311479	• • Flex Conduit (2 ea.)	1	3	–	–	Replace
	2311479	• • Rigid Conduit	1	5052-0 Tube	0.035	–	Replace
	2511295	• • Clip (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511295	• • Channel	1	2024-T42 Clad	0.040	–	Replace
	2511295	• • Intercoastal	1	2024-T42 Clad	0.040	–	Replace
	2511295	• • Skin	1	2024-T42 Clad	0.040	–	Replace
	2511295	• • Skin	1	2024-T3 Clad	0.040	–	Replace
	2611092	• Frame, LH & RH (Curtain Track Support)	6	2024-T42 Clad	0.020	–	Replace
	2611092	• Frame, LH & RH (Curtain Track Support)	7	2024-T42 Clad	0.020	–	Replace
	2511000	• Strap	1	2024-T3 Clad	0.050	–	Replace
	2511002	• Filler	1	2024-T42 Clad	0.080	–	Replace
9	2311560	• Longeron Instl., Top Centerline Fwd	1	–	–	–	–
	2311560	• • Safety Band (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311560	• • Web, LH & RH Center	1	2024-T42 Clad	0.032	–	Replace
	2311560	• • Web, LH & RH Fwd	1	2024-T42 Clad	0.032	–	Replace
	2311560	• • Web, LH & RH Aft	1	2024-T42 Clad	0.032	–	Replace
	2311560	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
10	2311272	• Torsion Bar Instl., Lower Door	1	–	–	–	–
	2311272	• • Fitting Assy.	1	–	–	–	–
	2311272	• • • Plate	1	4130 Steel	0.100	–	Replace
	2311272	• • • Fitting	1	4130 Steel	3/8 Dia	–	Replace
	2311272	• • Bearing	1	–	–	–	–
	2311272	• • • Plate	1	6061-T6	0.090	–	Replace
	2311272	• • • Sleeve	1	6061-T6 4	–	–	Replace
	2311272	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2311272	• • Spacer	1	Phenolic 5	–	–	Replace
	2311272	• • End Fitting	1	4130 Steel 6	1.5 Dia	F8-1	Replace
	2311272	• • Torsion Bar Assy.	1	–	–	–	–
	2311272	• • • Torsion Bar	1	A151 17-4 P.H. SS	5/16 Dia	F-21	Replace
	2311272	• • • Link	1	A151 17-4 P.H. SS	0.125	–	Replace
	2311272	• • • Link	1	A151 301 SS 7	0.125	F-21	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
11	2311623	• Support Instl.	1	–	–	–	–
	2311623	• • Tee	1	S-551	–	–	Replace
	2311623	• • Shim	1	2024-T3 Clad	0.100	–	Replace
	2311623	• • Support	1	S-578	–	–	Replace
	2311623	• • Bracket (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2311623	• • Angle Assy. (2 ea.)	1	–	–	–	Replace
	2311623	• • • Angle	1	S-591	–	–	Replace
	2311623	• • Plate	1	2024-T3 Clad	0.190	–	Replace
12	2511674	• Stiffener & Fitting Instl. (2 ea.)	1	–	–	–	–
	2511674	• • Angle	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Stiffener (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Clip	1	2024-T42 Clad	0.050	–	Replace
	2511664	• • Fitting	8	–	–	–	Replace
	2511666	• • Fitting	9	–	–	–	Replace
	2511666	• • Fitting	10	–	–	–	Replace
	2511666	• • Spacer	10	2024-T3 Clad	0.250	–	Replace
13	2311677	• Jack Pad Support Instl.	1	–	–	–	Replace
	2311677	• • Bracket Assy.	1	–	–	–	Replace
	2311684	• • • Plate	1	6061-0	0.190	–	Replace
	2311684	• • • Channel	1	6061-0	0.100	–	Replace
14	2315122	• Bellcrank Support Instl., Rudder LH & RH	1	–	–	–	Replace
	2315122	• • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2315122	• • Angle	1	2024-T42 Clad	0.040	–	Replace
	2315122	• • Angle	1	S-554	–	–	Replace
	2315122	• • Angle	1	S-520	–	–	Replace
	2315122	• • Support Assy.	1	–	–	–	Replace
	2315122	• • • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2315122	• • Angle	1	S-738	–	–	Replace
15	2315122	• Sector Support Instl.	10	–	–	–	–
	2315122	• Sector Support Instl.	11	–	–	–	–
	2315122	• • Bearing Plate	1	2024-T42 Clad	0.050	–	Replace
	2615123	• • Bracket Assy., Upper	11	–	–	–	Replace
	3315123	• • Bracket Assy., Upper	12	–	–	–	Replace
	2615289	• • Bracket Assy., Upper	13	–	–	–	Replace
	2615123	• • Sector Support	11	2024-T42 Clad	0.050	–	Replace
	3315123	• • Sector Support	12	2024-T42 Clad	0.050	–	Replace
	2615289	• • Sector Support	13	2024-T42 Clad	0.050	–	Replace
	2615123	• • Spacer	11	2024-T42 Clad	0.050	–	Replace
	3315123	• • Spacer	12	2024-T42 Clad	0.050	–	Replace
	2615289	• • Spacer	13	2024-T42 Clad	0.050	–	Replace
	2615123	• • Bracket Assy., Upper (2 ea.)	12	–	–	–	Replace
	2615123	• • • Sector Support	12	2024-T42 Clad	0.050	–	Replace
	2315122	• • • Bearing Plate	12	2024-T42 Clad	0.100	–	Replace
	2615181	• • • Clamp Support (2 ea.)	11	2024-T42 Clad	0.050	–	Replace
	2411002	• Clip (2 ea.)	1	2024-T42 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411002	• Splice Angle (6 ea.)	14	S-544	–	–	Replace
	2411002	• Splice Angle (6 ea.)	15	S-748	–	–	Replace
	2411002	• Splice Angle	16	S-544	–	–	Replace
	2411002	• Doubler	16	S-544	–	–	Replace
	2411321	• Channel	1	2024-T42 Clad	0.040	–	Replace
	2411321	• Gusset (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2511333	• Gusset (2 ea.)	5	2024-T42 Clad	0.040	–	Replace
	2514303	• Doubler Instl., LH & RH	1	–	–	–	–
	2514303	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2618381	• Doubler Instl.	17	–	–	–	–
	2618382	• • Doubler Assy.	17	–	–	–	Replace
	2618382	• • • Doubler	17	2024-T3 Clad	0.050	–	Replace
	2513315	• Seat Belt Instl.	10	–	–	–	–
	2513315	• • Support, Lower Fwd	10	2024-T42 Clad	0.040	–	Replace
	2513315	• • Support, Upper Fwd	10	2024-T42 Clad	0.040	–	Replace
	2513315	• • Doubler (3 ea.)	10	2024-T3 Clad	0.040	–	Replace
	2513315	• • Spacer	10	2024-T3 Clad	0.050	–	Replace
	2513193	• • Support, Lower Aft	10	2024-T42 Clad	0.040	–	Replace
	2513193	• • Support, Upper Aft	10	2024-T42 Clad	0.040	–	Replace
	2513193	• • Bracket	10	4130 Steel	0.125	–	Replace
	2511340	• Shoulder Harness Instl.	18	–	–	–	–
	2511340	• Shoulder Harness Instl.	19	–	–	–	–
	3111097	• Shoulder Harness Instl.	20	–	–	–	–
	2388162	• • Clip (4 ea.)	18	2024-T42 Clad	0.063	–	Replace
	2388162	• • Clip (2 ea.)	19	2024-T42 Clad	0.063	–	Replace
	2388162	• • Support Assy., LH & RH	18	–	–	–	Replace
	2388162	• • • Support	18	2024-T42 Clad	0.063	–	Replace
	2388162	• • Support Assy., LH & RH	19	–	–	–	Replace
	2388162	• • • Support	19	2024-T42 Clad	0.063	–	Replace
	2388162	• • Support, LH & RH	19	2024-T42 Clad	0.063	–	Replace
	3111098	• • Support Assy., LH & RH (2 ea.)	20	–	–	–	Replace
	3111098	• • • Support	20	2024-T42 Clad	0.063	–	Replace
	3111098	• • Angle (2 ea.)	20	2024-T42 Clad	0.040	–	Replace
16	2615101	• Pedestal & Controls Support Structure Instl.	1	–	–	–	–
	2615101	• • Intercostal, LH & RH	1	2024-T42 Clad	0.063	–	Replace
	2315123	• • Bearing Support, LH& RH Fwd	21	2024-T42 Clad	0.050	–	Replace
	2315123	• • Bearing Support, LH & RH Fwd	22	2024-T42 Clad	0.050	–	Replace
	2315123	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2315123	• • Support Frame	1	2024-T42 Clad	0.063	–	Replace
	2315123	• • Bearing Support, LH & RH Aft	1	2024-T42 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511370	• Longeron Instl., LH & RH	1	–	–	–	–
	2511370	• • Attach Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2511370	• • Doubler	1	2024-T3 Clad	0.063	–	Replace
	2411371	• • Aft Drag Block	1	S-517	–	–	Replace
	2511370	• • Longeron	1	2024-T42 Clad	0.100	–	Replace
	2511370	• • Filler	1	2024-T3 Clad	0.100	–	Replace
	2411371	• • Drag Block, Fwd	1	S-5017	–	–	Replace
	2411280	• Door Frame Instl.	1	–	–	–	Replace
	2411280	• • Seal, Top	1	S-308	–	–	Replace
	2411280	• • Seal, Bottom	1	S-308	–	–	Replace
	2411280	• • Seal, Fwd Lower	1	S-308	–	–	Replace
	2411280	• • Seal, Fwd Upper	1	S-308	–	–	Replace
	2411280	• • Seal, Aft Lower	1	S-308	–	–	Replace
	2411280	• • Seal, Aft Upper	1	S-308	–	–	Replace
	2411280	• • Plug (2 ea.)	1	8	–	–	Replace
	2411280	• • Rain Seal Diaphragm	1	Mat. No. 4554	0.013	–	Replace
	2411281	• • Switch Support (8 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2411281	• • Guide Plate (8 ea.)	1	4130 Steel	0.080	–	Replace
	2411281	• • Tube Assy.	1	7	–	–	Replace
	2411281	• • Seal Plate (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2411281	• • Corner Splice, Aft	1	2024-T42 Clad	0.040	–	Replace
	2411281	• • Corner Splice, Fwd	1	2024-T42 Clad	0.040	–	Replace
	2411281	• • Corner Seal Retainer, Lwr Fwd	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Corner Seal Retainer, Lwr Aft	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Corner Seal Retainer, Upr Fwd	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Corner Seal Retainer, Upr Aft	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Doubler	1	2024-T3 Clad	0.063	–	Replace
	2411281	• • Seal Retainer, Upper	1	2024-T42 Clad	0.040	–	Replace
	2411281	• • Tube Assy.	1	–	–	–	–
	2411281	• • • Tube	1	321 Stainless 10	–	–	Replace
	2411281	• • • Tube	1	321 Stainless 11	–	–	Replace
	2411281	• • Hinge Pin	1	MS20253-2-140	–	–	Replace
	2411281	• • Hinge Half	1	MS20001PX4	–	–	Replace
	2411283	• • Hinge Assy., Upper	1	–	–	–	Replace
	2411283	• • • Hinge Half	1	–	0.050	–	Replace
	2411283	• • • Hinge Pin	1	MS20253-5	–	–	Replace
	2411283	• • • Hinge Half	1	12	0.050	–	Replace
	2411284	• • Seal Retainer, Fwd	1	S-553	–	–	Replace
	2411284	• • Seal Retainer, Aft	1	S-553	–	–	Replace
	2411282	• • Hinge Assy., Lower	1	–	–	–	–
	2411282	• • • Hinge Half (2 ea.)	1	12	0.050	–	Replace
	2411282	• • • Hinge Pin	1	12	0.050	–	Replace
	2411281	• • Plate (3 ea.)	1	301 Stainless 13	0.063	F18	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2318763	• Doubler Instl., LH & RH	2	–	–	–	–
	2318763	• • Angle (2 ea.)	2	2024-T42 Clad	0.050	–	Replace
	2688038	• Doubler Instl. (2 ea.)	24	–	–	–	–
	2688038	• • Angle (2 ea.)	25	2024-T42 Clad	0.050	–	Replace
	2688038	• • Angle (2 ea.)	26	2024-T42 Clad	0.050	–	Replace
	2618397	• Doubler Instl.	23	–	–	–	–
	2618398	• • Doubler	1	2024-T42 Clad	0.020	–	Replace
	2688151	• • Filler	1	2024-T3 Clad	0.090	–	Replace
	2511416	• Shim (18 ea.)	27	2024-T3 Clad	0.032	–	Replace
17	2411325	• External Release Instl.	1	–	–	–	–
	2411323	• • Spacer	1	2024-T4 Rod	0.250	–	Replace
	2411323	• • Bellcrank Drive	1	2024-T351 Plate	0.375	–	Replace
	2411323	• • Angle Assy.	1	–	–	–	Replace
	2411323	• • • Angle	1	S-580	–	–	Replace
	2411323	• • Spacer	1	6061-T6	0.375	–	Replace
	2411323	• • Linkage	1	2024-T4 Plate	0.375	–	Replace
	2411323	• • Linkage	1	2024-T3	0.125	–	Replace
	2411323	• • Bellcrank Idler	1	2024-T351 Plate	0.500	–	Replace
	2411323	• • Pin (2 ea.)	28	2024-T4 Al Rod	0.438	F3	Replace
	2411323	• • Pin (2 ea.)	29	2024-T4 Al Rod	0.438	F3	Replace
	2411323	• • Guide Pin (2 ea.)	1	2024-T351 Plate	0.500	–	Replace
	2411328	• • Flush Latch Handle Assy.	1	–	–	–	–
	2411325	• • • Spring Retainer	1	14	–	–	Replace
	2411328	• • • Spring	1	MS24585-C414	–	–	Replace
18	2611127	• Connector Box Instl.	30	–	–	–	–
	2611118	• • Cover	30	2024-T42 Clad	0.050	–	Replace
	2611123	• • End, LH & RH	30	2024-T42 Clad	0.050	–	Replace
	2611124	• • End, LH & RH	30	2024-T42 Clad	0.050	–	Replace
	2611125	• • Bracket, LH & RH	30	2024-T42 Clad	0.040	–	Replace
	2611125	• • Support	30	2024-T42 Clad	0.040	–	Replace
	2611126	• • Rib, LH & RH	30	2024-T42 Clad	0.071	–	Replace
	2611128	• • Cover Assy., LH & RH	30	–	–	–	–
	2611128	• • • Cover	30	2024-T42 Clad	0.050	–	Replace
	2611128	• • • Support (3 ea.)	30	S-522	–	–	Replace
	2611128	• • • Filler (6 ea.)	30	2024-T42 Clad	0.050	–	Replace
	2511183	• • Seal	30	ABS Therm Plastic	0.063	–	Replace
	2611125	• • Support	30	2024-T42 Clad	0.040	–	Replace
	2611125	• • Support, LH & RH (2 ea.)	30	S-626	–	–	Replace
	2611125	• • Gusset, LH & RH	30	2024-T42 Clad	0.040	–	Replace
	2611125	• • Filler (2 ea.)	30	2024-T3 Clad	0.100	–	Replace
	2511216	• • Bracket, LH & RH	30	2024-T42 Clad	0.063	–	Replace
	2618314	• Doubler (FS 196, between Stringers 10 & 11)	31	2024-T3 Clad	0.080	–	Replace
	2618551	• Doubler (FS 196, between Stringers 10 & 11)	32	2024-T3 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3111116	• Pressurized Connector Box Instl.	33	–	–	–	–
	3111117	• • Cover Assy., LH & RH	33	–	–	–	Replace
	3111119	• • • Cover	33	2024-T42 Clad	0.507	–	Replace
	3111119	• • • Stiffener (3 ea.)	33	S-522	0.032	–	Replace
	3111119	• • • Filler	33	2024-T42 Clad	0.507	–	Replace
	3111118	• • Rib Assy., LH & RH	33	–	–	–	Replace
	3111118	• • • Rib (2 ea.)	33	2024-T42 Clad	0.050	–	Replace
	3111118	• • • Rib	33	2024-T42 Clad	0.071	–	Replace
	3111118	• • • Support	33	2024-T42 Clad	0.040	–	Replace
	3111118	• • • Filler	33	2024-T42 Clad	0.040	–	Replace
	3111119	• • • Angle	33	S-5001	0.010	–	Replace
	3111119	• • • Angle	33	S-5001	0.012	–	Replace
	3111119	• • • Angle	33	S-5001	0.015	–	Replace
	3111119	• • • Seal (4 ea.)	33	16	0.010	–	Replace
	2511332	• Skin Doubler, LH Aft	34	2024-T3 Clad	0.063	–	Replace
19	2511215	• Blower Evaporator Support Structure Instl.	1	–	–	–	–
	2511216	• • Bracket, LH & RH	35	2024-T42 Clad	0.063	–	Replace
	2511216	• • Bracket, LH & RH	36	2024-T42 Clad	0.063	–	Replace
	2511216	• • Channel	37	2024-T42 Clad	0.040	–	Replace
	2511216	• • Clip (2 ea.)	37	2024-T42 Clad	0.040	–	Replace
	2619042	• • Bracket	1	2024-T3 Clad	0.050	–	Replace
	2411321	• Channel (Above Escape Hatch)	1	2024-T42 Clad	0.040	–	Replace
	2311258	• Inner Skin Instl. (FS 160 to 209, RH & LH)	1	–	–	–	–
	2311258	• • Skin, LH & RH	38	2024-T42 Clad	0.050	–	Replace
	2311258	• • Skin, LH & RH	39	2024-T42 Clad	0.050	–	Replace
	2311258	• • Strap	40	2024-T3 Clad	0.050	–	Replace
	2311258	• • Filler	40	2024-T3 Clad	0.160	–	Replace
20	2411320	• Escape Hatch Instl.	1	–	–	–	–
		• • Escape Hatch Assy. (Refer to Chapter 52)	1	–	–	–	–
	2411322	• • Strap	1	2024-T3 Clad	0.250	–	Replace
	2411322	• • Tee Support	1	2024-T351	1.600	–	Replace
	2411322	• • Clip Assy.	1	–	–	–	–
	2411322	• • • Clip Support	1	2024-T3 Clad	0.040	–	Replace
	2411322	• • • Clip	1	NAS1464-038-05C	–	–	Replace
	2411322	• Doubler, Aft Fuselage Window	1	2024-T42 Clad	0.063	–	Replace
	2511674	• Stiffener & Plate Instl., LH & RH	1	–	–	–	–
	2511674	• • Clip (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Angle	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Plate (LH Only)	1	2024-T3 Clad	0.080	–	Replace
	2511674	• • Plate (RH Only)	1	2024-T3 Clad	0.050	–	Replace
	2511674	• • Stiffener (3 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Filler	1	2024-T3 Clad	0.063	–	Replace
	2511674	• • Stiffener	1	2024-T42 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511674	• • Plate	1	2024-T3 Clad	0.050	–	Replace
	2511674	• • Stiffener	1	2024-T42 Clad	0.063	–	Replace
	2511644	• • Fitting	1	–	–	–	Replace
	2411324	• Inner Doubler Assy., (Escape Hatch)	1	–	–	–	–
	2411324	• • Doubler	41	6061-T6	0.040	–	Replace
	2411324	• • Doubler	42	6061-T6	0.040	–	Replace
	2411324	• • Spacer (4 ea.)	41	2024-T42 Clad	A/R	–	Replace
	2411324	• • Spacer (4 ea.)	42	2024-T42 Clad	A/R	–	Replace
	2411326	• • Nut Retainer (4 ea.)	41	2024-T42 Clad	0.040	–	Replace
	2411326	• • Nut Retainer (4 ea.)	42	2024-T42 Clad	0.040	–	Replace
	2411323	• • Plate	41	2024-T3 Clad	0.090	–	Replace
	2411323	• • Plate	42	2024-T3 Clad	0.090	–	Replace
	2411321	• Frame (FS 350, RH Side Only)	1	2024-T42 Clad	0.040	–	Replace
	2489168	• Doubler Instl.	1	–	–	–	–
	2489168	• • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • Radius Filler (4 ea.)	1	2024-T3 Clad	0.125	–	Replace
	2489168	• • Doubler Assy., Fwd (2 ea.)	1	–	–	–	Replace
	2489168	• • • Doubler	1	2024-T3 Clad	0.040	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.190	–	Replace
	2489168	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2489168	• • Filler (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2489168	• • Angle Assy.	1	–	–	–	Replace
	2489168	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.190	–	Replace
	2489168	• Doubler Instl. (ADF Antenna)	2	–	–	–	–
	2489168	• • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • Radius Filler (4 ea.)	1	2024-T3 Clad	0.125	–	Replace
	2489168	• • Doubler Assy., Aft (2 ea.)	1	–	–	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.160	–	Replace
	2489168	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.160	–	Replace
	2489168	• • Filler (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2489168	• • Angle Assy.	1	–	–	–	Replace
	2489168	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.190	–	Replace
	3118916	• Doubler Instl. (ADF Antenna)	3	–	–	–	–
	3118919	• • Doubler	3	2024-T351 Clad	0.313	–	Replace
21	2411473	• Crew Seat Rails Instl., LH & RH	1	–	–	–	–
	2511580	• • Shim, Laminated (Max. 0.032)	1	▷1	–	–	Replace
	2511580	• • Filler	1	2024-T3 Clad	0.063	–	Replace
	2511580	• • End Plate	1	2024-T42 Clad	0.040	–	Replace
	2511580	• • Clip	1	2024-T3 Clad	0.063	–	Replace
	2511580	• • Filler	1	2024-T3 Clad	0.100	–	Replace
	2511581	• • Clip	1	2024-T3 Clad	0.050	–	Replace

Fuselage Assembly Repair Index
Figure 1 (Sheet 10 of 15)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511581	• • Intercostal	1	2024-T3 Clad	0.040	–	Replace
	2511581	• • Angle Tie	1	2024-T3 Clad	0.040	–	Replace
	2511581	• • Plate	1	2024-T3 Clad	0.040	–	Replace
	2511581	• • Floor Board Support	43	2024-T42 Clad	0.080	–	Replace
	2511581	• • Floor Board Support	44	2024-T42 Clad	0.080	–	Replace
	2511581	• • Zee, Rail Support	43	2024-T3 Clad	0.040	–	Replace
	2511581	• • Zee, Rail Support	44	2024-T3 Clad	0.040	–	Replace
	2511581	• • Channel, Rail Support	43	2024-T42 Clad	0.040	–	Replace
	2511581	• • Channel, Rail Support	44	2024-T42 Clad	0.040	–	Replace
	2511582	• • Seat Rail (3 ea.)	43	S-537	–	–	Replace
	2511582	• • Seat Rail (3 ea.)	44	S-537	–	–	Replace
	2511580	• • End Plate Assy.	45	–	–	–	Replace
	2511580	• • • End Plate	45	2024-T42 Clad	0.040	–	Replace
	2511580	• • Clip Assy. (2 ea.)	45	–	–	–	Replace
	2511580	• • • Clip (2 ea.)	45	2024-T3 Clad	0.063	–	Replace
	2511581	• • Intercostal Assy. (2 ea.)	45	–	–	–	Replace
	2511581	• • • Intercostal	45	2024-T42 Clad	0.040	–	Replace
	2511581	• • Rail Support Zee Assy. (2 ea.)	45	–	–	–	Replace
	2511581	• • • Zee	45	2024-T3 Clad	0.040	–	Replace
	2511581	• • • Plate	45	2024-T3 Clad	0.040	–	Replace
22	2614063	• Glareshield Instl.	46	–	–	–	–
	2614063	• Glareshield Instl.	47	–	–	–	–
	2614063	• Glareshield Instl.	48	–	–	–	–
	2614063	• • Glareshield	46	2024-T42 Clad	0.050	–	Replace
	2614063	• • Glareshield	49	6061-T6	0.050	–	Replace
	2614063	• • Angle	46	2024-T42 Clad	0.050	–	Replace
	2614063	• • Angle	49	2024-T42 Clad	0.050	–	Replace
	2614063	• • Screen (3 ea.) 15	49	3003-H14 Al	–	–	Replace
	2614063	• • Doubler, LH & RH	49	2024-T3 Clad	0.050	–	Replace
	2614063	• • Doubler, Center	49	2024-T3 Clad	0.050	–	Replace
	2611116	Pressurized Connector Box Instl.	50	–	–	–	–
	2611116	• Plate (2 ea.)	50	2024-T3 Clad	0.050	–	Replace
	2611122	• Cover Assy., LH & RH	51	–	–	–	Replace
	2611122	• Cover Assy., LH & RH	52	–	–	–	Replace
	2611122	• • Support	53	S-707	–	–	Replace
	2611122	• • Channel	53	S-325	–	–	Replace
	2611122	• • Filler (8 ea.)	53	2024-T3 Clad	0.050	–	Replace
	2611116	• Cover	54	2024-T3 Clad	0.050	–	Replace
	2511183	• Seal (8 ea.)	50	16	–	–	Replace
	2611117	• Rib Assy., LH & RH	51	–	–	–	Replace
	2611117	• Rib Assy., LH & RH	55	–	–	–	Replace
	2611117	• Rib Assy., LH & RH	56	–	–	–	Replace
	2611117	• • Rib	50	2024-T3 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611118	• End Assy., LH & RH	51	–	–	–	Replace
	2611118	• End Assy., LH & RH	57	–	–	–	Replace
	2611118	• • End	50	2024-T3 Clad	0.063	–	Replace
	2611119	• End Assy., LH & RH	51	–	–	–	Replace
	2611119	• End Assy., LH & RH	57	–	–	–	Replace
	2611119	• • End	50	2024-T3 Clad	0.063	–	Replace
	2611120	• Angle Assy.	58	–	–	–	Replace
	2611120	• Angle Assy.	59	–	–	–	Replace
	2611120	• • Angle	58	2024-T3 Clad	0.063	–	Replace
	2611120	• • Angle	59	2024-T3 Clad	0.063	–	Replace
	2611122	• Gusset	50	2024-T24 Clad	0.063	–	Replace
	2611122	• Angle, LH & RH	50	S-522	–	–	Replace
	2611122	• Support, LH & RH	60	2024-T3 Clad	0.032	–	Replace
	2611122	• Support, LH & RH	56	2024-T3 Clad	0.032	–	Replace
	2611122	• Cover (2 ea.)	50	2024-T42 Clad	0.050	–	Replace

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CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	31-001 THRU 31-034; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
3	31-035 AND SUBSEQUENT
4	31-001 AND SUBSEQUENT; 35-492 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
5	35-001 THRU 35-264; 36-001 AND SUBSEQUENT
6	35-001 THRU 35-477; 36-001 THRU 36-050
7	35-478 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
8	31-001 THRU 31-027; 35-001 THRU 35-658, 35-660 THRU 35-662; 36-001 THRU 36-063
9	31-028 THRU 31-041, 31-043 THRU 31-051; 35-659, 35-663 THRU 35-666
10	31-042, 31-052 AND SUBSEQUENT; 35-676 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
11	35-001 THRU 35-519; 36-001 THRU 36-053
12	35-520 THRU 35-623; 36-054, 36-055
13	35-624 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
14	35-001 THRU 35-534, 35-589, 35-590; 36-001 THRU 36-053
15	35-535 THRU 35-588, 35-591 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
16	35-001 THRU 35-505; 36-001 THRU 36-053
17	31-001 AND SUBSEQUENT; 35-456 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
18	31-001 THRU 31-022, 31-035 THRU 31-038; 35-478 THRU 35-668; 36-051 THRU 36-036
19	31-023 THRU 31-034; 35-662 THRU 35-666
20	31-039 AND SUBSEQUENT; 35-669 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
21	35-001 THRU 35-130; 36-001 THRU 36-033
22	35-131 AND SUBSEQUENT; 36-034 AND SUBSEQUENT
23	36-051 AND SUBSEQUENT
24	35-281 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
25	35-001 THRU 35-281; 36-001 THRU 36-044
26	35-282 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
27	31-011 AND SUBSEQUENT; 35-647 AND SUBSEQUENT; 36-058 AND SUBSEQUENT
28	35-001 THRU 35-264; 36-001 THRU 36-044
29	35-265 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
30	36-001 AND SUBSEQUENT
31	31-001 THRU 31-060; 35-390, 35-394 THRU 35-673; 36-048 THRU 36-063
32	31-061 AND SUBSEQUENT; 35-674 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
33	31 SERIES AIRCRAFT EQUIPPED FOR EXTENDED RANGE
34	31-001 AND SUBSEQUENT; 35-265, 35-369, 35-371 AND SUBSEQUENT
35	35-001 THRU 35-091; 36-001 THRU 36-024
36	35-092 AND SUBSEQUENT; 36-025 AND SUBSEQUENT
37	36-001 THRU 36-059
38	35-001 THRU 35-122, 35-149 AND SUBSEQUENT; 36-001 THRU 36-032, 36-037 AND SUBSEQUENT
39	35-123 THRU 35-148; 36-033 THRU 36-036
40	35-123 AND SUBSEQUENT; 36-042 AND SUBSEQUENT
41	35-001 THRU 35-130; 36-001 THRU 35-034
42	35-131 AND SUBSEQUENT; 36-035 AND SUBSEQUENT

Fuselage Assembly Repair Index
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43	35-001 THRU 35-629; 36-001 THRU 36-055
44	35-630 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
45	31-063 AND SUBSEQUENT; 35-675 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
46	35-001 THRU 35-039; 36-001 THRU 36-016
47	35-040 THRU 35-642; 36-017 AND SUBSEQUENT
48	31-001 AND SUBSEQUENT; 35-643 AND SUBSEQUENT
49	31-001 AND SUBSEQUENT; 35-040 AND SUBSEQUENT; 36-017 AND SUBSEQUENT
50	31-001 AND SUBSEQUENT; 35-370, 35-390 AND SUBSEQUENT
51	35-370, 35-390 THRU 35-508
52	31-001 THRU 31-030; 35-509 THRU 35-664
53	31-001 THRU 31-030; 35-370, 35-390 THRU 35-664
54	31-031 AND SUBSEQUENT; 35-665 AND SUBSEQUENT
55	31-001 THRU 31-072; 35-509 THRU 35-676
56	31-073 AND SUBSEQUENT; 35-677 AND SUBSEQUENT
57	31-001 AND SUBSEQUENT; 35-509 AND SUBSEQUENT
58	31-001 THRU 31-063; 35-001 THRU 35-674
59	31-064 AND SUBSEQUENT; 35-675 AND SUBSEQUENT
60	31-001 THRU 31-072; 35-370, 35-390 THRU 35-676

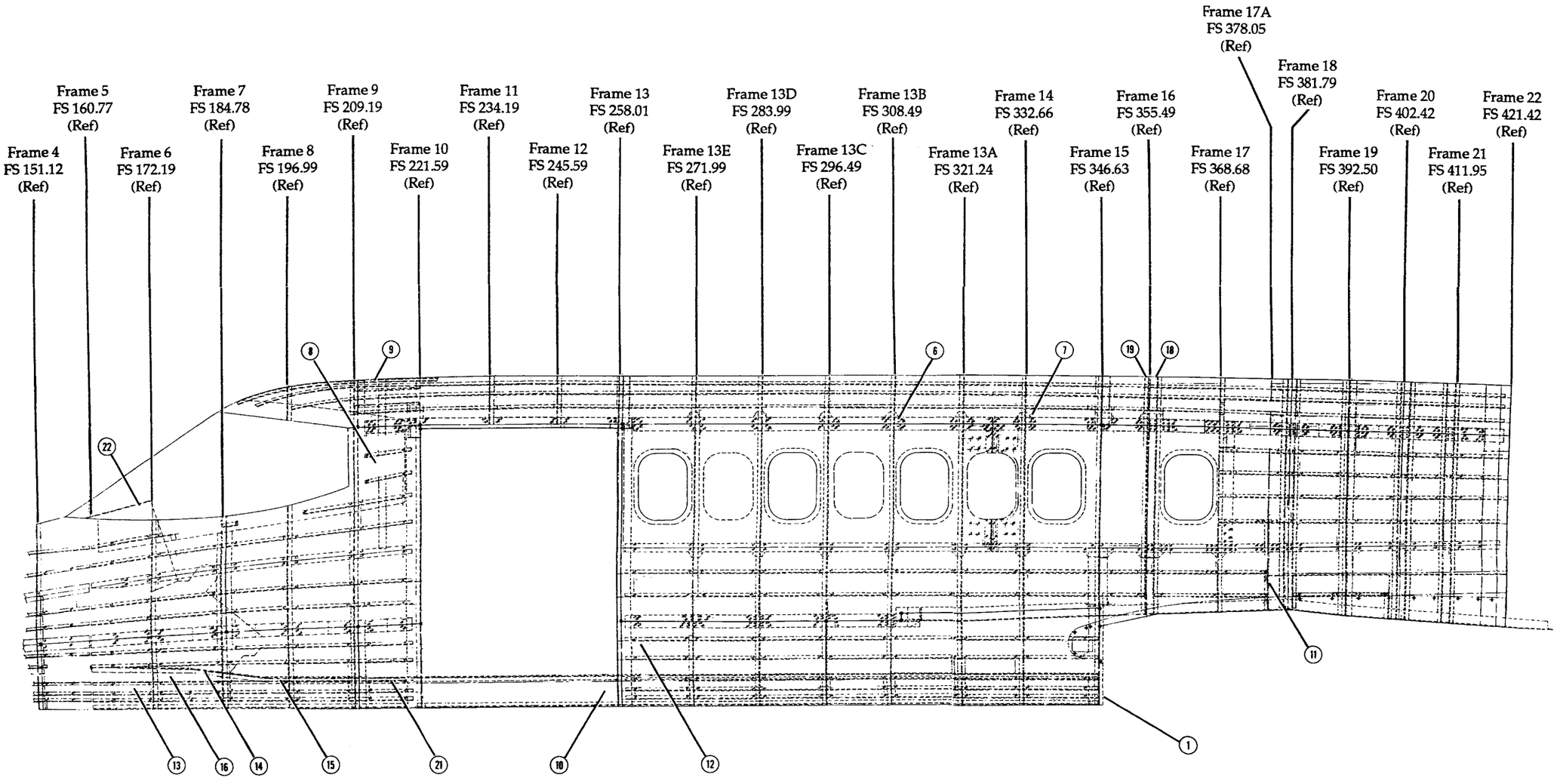
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NOTES:

1. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.
2. 1/4 OD x 3/16 ID Teflon Tubing
3. 1/2 OD x 3/8 ID Teflon Tubing
4. 3/8 OD x 0.065 Wall Tubing
5. Type FBG or FBM per MIL-P-15035
6. Heat Treat to 180,000 PSI
7. Condition 1/2 Hard
8. Commercial Grade, Low Density Silicon Sponge Rubber
9. 0.650 OD x 0.065 Wall 4130 Steel Tubing
10. 0.187 OD x 0.035 Wall 321 Stainless Steel
11. 0.250 OD x 0.035 Wall 321 Stainless Steel
12. 321 or 347 Stainless Steel
13. Condition 1/4 Hard
14. Make from NAS1169DD10L
15. Screens 3/16. 0.032, 1/4- inch Centers
16. ABS Thermo Plastic 0.063, Optional to make from 0.060 Thermo Formidable Plastic

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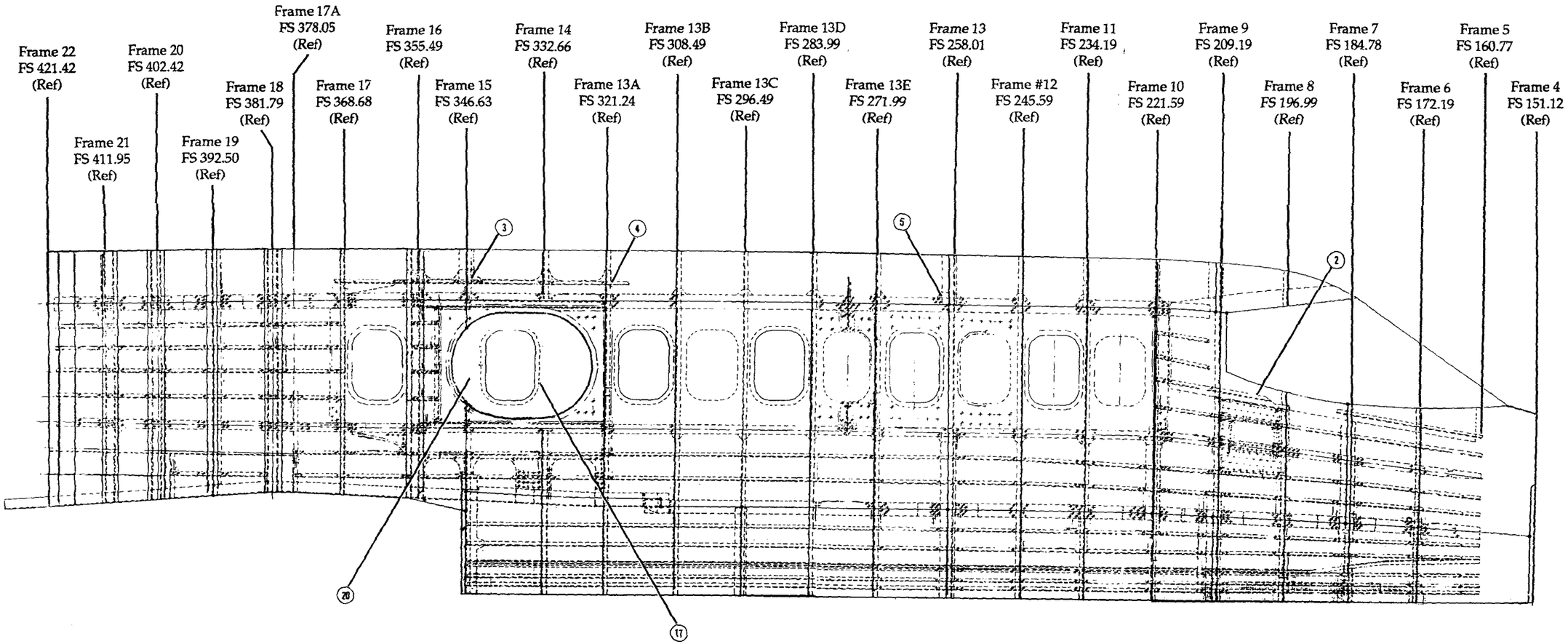
FUSELAGE ASSEMBLY - STRUCTURAL IDENTIFICATION



(VIEW LH SIDE LOOKING INBOARD)

(TYPICAL)

FUSELAGE ASSEMBLY - STRUCTURAL IDENTIFICATION



(VIEW RH SIDE LOOKING INBOARD)

(TYPICAL)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611000	Fuselage Structure Assembly	1	–	–	–	–
	–	• Fuselage Frames Instl. (Refer to 53-21-00)	–	–	–	–	–
	–	• Fuselage Stringers Instl. (Refer to 53-22-00)	–	–	–	–	–
	–	• Fuselage Windshield Instl. (Refer to 53-24-00)	–	–	–	–	–
	–	• Fuselage Instrument Panel Structure Instl. (Refer to 53-25-00)	–	–	–	–	–
	–	• Fuselage Circuit Breaker Panel Structure Instl. (Refer to 53-26-00)	–	–	–	–	–
	–	• Fuselage Skins Instl. (Refer to 53-28-00)	–	–	–	–	–
	–	• Fuselage Seat & Baggage Flr. Instl (Refer to 53-29-00)	–	–	–	–	–
	–	• Fuselage Keelbeam Assemblies (Refer to 53-50-00)	–	–	–	–	–
1	2311150	• Bulkhead Instl. (Frame 15)	1	–	–	–	–
	2311150	• • Stiffener, Center	1	S-554	–	–	Replace
	2311150	• • Stiffener, LH & RH (5 ea.)	1	S-554	–	–	Replace
	2311150	• • Angle, Support	1	S-565	–	–	Replace
	2311150	• • Frame Web	1	2024-T42 Clad	0.050	–	Replace
	2311150	• • Stiffener	1	2024-T42 Clad	0.063	–	Replace
	2311150	• • Strap (4 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311153	• • Strap (2 ea.)	1	2024-T3 Clad	0.120	–	Replace
	2311154	• • Strap, Outer	1	4130 Steel	0.080	F8-1	Replace
	2311155	• • Strap, Outer	1	4130 Steel	0.063	F8-1	Replace
	2311153	• • Fitting, Longeron	1	–	–	–	Replace
	2311150	• • Safety Band (2 ea.)	1	2024-T42	0.025	–	Replace
	2311150	• • Shim (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2311150	• • Plate	1	2024-T3 Clad	0.032	–	Replace
	2311150	• • Stiffener, LH & RH	1	2024-T42 Clad	0.080	–	Replace
	2311150	• • Safety Band	1	2024-T3 Clad	0.063	–	Replace
	2311150	• • Shim, Laminated (Max. 0.032)	1	[1]	–	–	–
	2311150	• • Web Assy.	2	–	–	–	–
	2311150	• • • Web	2	2024-T3 Clad	0.040	–	Replace
	2311150	• • Web Assy.	3	–	–	–	–
	2311150	• • • Web	3	2024-T3 Clad	0.040	–	Replace
	2311150	• • Stiffener (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2311151	• • Fitting	1	2024-T42 Clad	1.250	–	Replace
2	2618326	• Doubler (RH Side Only)	4	2024-T3 Clad	0.025	–	Replace
3	2511321	• Skin Doubler, Escape Hatch	1	2024-T42 Clad	0.080	–	Replace

Fuselage Assembly Repair Index
Figure 2 (Sheet 3 of 15)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
4	2511330	• Window Doubler, RH Aft	1	2024-T42 Clad	0.063	–	Replace
5	2611330	• Window Doubler, RH Fwd	1	2024-T42 Clad	0.063	–	Replace
6	2611330	• Window Doubler, LH Fwd	1	2024-T42 Clad	0.063	–	Replace
7	2611330	• Window Doubler, LH Aft	5	2024-T42 Clad	0.063	–	Replace
	2511000	• Splice Band (4 ea.)	1	2024-T42 Clad	0.063	–	Replace
8	2311479	• Inner Skin Instl., Door Frame	1	–	–	–	–
	2311479	• • Stiffener (8)	1	2024-T42 Clad	0.040	–	Replace
	2311479	• • Clip (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2311479	• • Flex Conduit	1	2	–	–	Replace
	2311479	• • Flex Conduit (2 ea.)	1	3	–	–	Replace
	2311479	• • Rigid Conduit	1	5052-0 Tube	0.035	–	Replace
	2311479	• • Splice (3 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311479	• • Clip (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2511295	• • Clip (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2311479	• • Skin	1	2024-T42 Clad	0.040	–	Replace
	2311479	• • Skin	1	2024-T3 Clad	0.040	–	Replace
	2611092	• Frame, LH & RH (Curtain Track Support)	6	2024-T42 Clad	0.020	–	Replace
	2611092	• Frame, LH & RH (Curtain Track Support)	7	2024-T42 Clad	0.020	–	Replace
	2511000	• Strap	1	2024-T3 Clad	0.050	–	Replace
	2511002	• Filler	1	2024-T42 Clad	0.080	–	Replace
9	2311560	• Longeron Instl., Top Centerline Fwd	1	–	–	–	–
	2311560	• • Safety Band (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311560	• • Web, LH & RH Center	1	2024-T42 Clad	0.032	–	Replace
	2311560	• • Web, LH & RH Fwd	1	2024-T42 Clad	0.032	–	Replace
	2311560	• • Web, LH & RH Aft	1	2024-T42 Clad	0.032	–	Replace
	2311560	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
10	2311272	• Torsion Bar Instl., Lower Door	1	–	–	–	–
	2311272	• • Fitting Assy.	1	–	–	–	–
	2311272	• • • Plate	1	4130 Steel	0.100	–	Replace
	2311272	• • • Fitting	1	4130 Steel	3/8 Dia	–	Replace
	2311272	• • Bearing	1	–	–	–	–
	2311272	• • • Plate	1	6061-T6	0.090	–	Replace
	2311272	• • • Sleeve	1	6061-T6 4	–	–	Replace
	2311272	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2311272	• • Spacer	1	Phenolic 5	–	–	Replace
	2311272	• • End Fitting	1	4130 Steel 6	1.5 Dia	F8-1	Replace
	2311272	• • Torsion Bar Assy.	1	–	–	–	–
	2311272	• • • Torsion Bar	1	A151 17-4 P.H. SS	5/16 Dia	F-21	Replace
	2311272	• • • Link	1	A151 17-4 P.H. SS	0.125	–	Replace
	2311272	• • • Link	1	A151 301 SS 7	0.125	F-21	Replace

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Figure 2 (Sheet 4 of 15)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
11	2311623	• Support Instl.	1	–	–	–	–
	2311623	• • Tee	1	S-551	–	–	Replace
	2311623	• • Shim	1	2024-T3 Clad	0.100	–	Replace
	2311623	• • Support	1	S-578	–	–	Replace
	2311623	• • Bracket (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2311623	• • Angle Assy. (2 ea.)	1	–	–	–	Replace
	2311623	• • • Angle	1	S-591	–	–	Replace
	2311623	• • Plate	1	2024-T3 Clad	0.190	–	Replace
12	2311674	• Stiffener & Fitting Instl.	1	–	–	–	–
	2311674	• • Angle	1	2024-T42 Clad	0.050	–	Replace
	2311674	• • Stiffener (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511662	• • Fitting	8	–	–	–	Replace
	2511666	• • Fitting	9	–	–	–	Replace
	2511666	• • Fitting	10	–	–	–	Replace
	2511666	• • Spacer	10	2024-T3 Clad	0.250	–	Replace
13	2311677	• Jack Pad Support Instl.	1	–	–	–	Replace
	2311677	• • Bracket Assy.	1	–	–	–	Replace
	2311684	• • • Plate	1	6061-0	0.190	–	Replace
	2311684	• • • Channel	1	6061-0	0.100	–	Replace
14	2315122	• Bellcrank Support Instl., Rudder LH & RH	1	–	–	–	Replace
	2315122	• • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2315122	• • Angle	1	2024-T42 Clad	0.040	–	Replace
	2315122	• • Angle	1	S-554	–	–	Replace
	2315122	• • Angle	1	S-520	–	–	Replace
	2315122	• • Support Assy.	1	–	–	–	Replace
	2315122	• • • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2315122	• • Angle	1	S-738	–	–	Replace
15	2315122	• Sector Support Instl.	10	–	–	–	–
	2315122	• Sector Support Instl.	11	–	–	–	–
	2315122	• • Bearing Plate	1	2024-T42 Clad	0.050	–	Replace
	2615123	• • Bracket Assy., Upper	11	–	–	–	Replace
	3315123	• • Bracket Assy., Upper	12	–	–	–	Replace
	2615289	• • Bracket Assy., Upper	13	–	–	–	Replace
	2615123	• • Sector Support	11	2024-T42 Clad	0.050	–	Replace
	3315123	• • Sector Support	12	2024-T42 Clad	0.050	–	Replace
	2615289	• • Sector Support	13	2024-T42 Clad	0.050	–	Replace
	2615123	• • Spacer	11	2024-T42 Clad	0.050	–	Replace
	3315123	• • Spacer	12	2024-T42 Clad	0.050	–	Replace
	2615289	• • Spacer	13	2024-T42 Clad	0.050	–	Replace
	2615123	• • Bracket Assy., Upper (2 ea.)	12	–	–	–	Replace
	2615123	• • • Sector Support	12	2024-T42 Clad	0.050	–	Replace
	2315122	• • • Bearing Plate	12	2024-T42 Clad	0.100	–	Replace
	2615181	• • • Clamp Support (2 ea.)	11	2024-T42 Clad	0.050	–	Replace
	2411002	• Clip (2 ea.)	1	2024-T42 Clad	0.050	–	Replace

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Figure 2 (Sheet 5 of 15)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411002	• Splice Angle (6 ea.)	14	S-544	–	–	Replace
	2411002	• Splice Angle (6 ea.)	15	S-748	–	–	Replace
	2411002	• Splice Angle	16	S-544	–	–	Replace
	2411002	• Doubler	16	S-544	–	–	Replace
	2411321	• Channel	1	2024-T42 Clad	0.040	–	Replace
	2411321	• Gusset (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2511333	• Gusset (2 ea.)	5	2024-T42 Clad	0.040	–	Replace
	2514303	• Doubler Instl., LH & RH	1	–	–	–	–
	2514303	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2618381	• Doubler Instl.	17	–	–	–	–
	2618382	• • Doubler Assy.	17	–	–	–	Replace
	2618382	• • • Doubler	17	2024-T3 Clad	0.050	–	Replace
	2513315	• Seat Belt Instl.	10	–	–	–	–
	2513315	• • Support, Lower Fwd	10	2024-T42 Clad	0.040	–	Replace
	2513315	• • Support, Upper Fwd	10	2024-T42 Clad	0.040	–	Replace
	2513315	• • Doubler (3 ea.)	10	2024-T3 Clad	0.040	–	Replace
	2513315	• • Spacer	10	2024-T3 Clad	0.050	–	Replace
	2513193	• • Support, Lower Aft	10	2024-T42 Clad	0.040	–	Replace
	2513193	• • Support, Upper Aft	10	2024-T42 Clad	0.040	–	Replace
	2513193	• • Bracket	10	4130 Steel	0.125	–	Replace
	2511340	• Shoulder Harness Instl.	18	–	–	–	–
	2511340	• Shoulder Harness Instl.	19	–	–	–	–
	3111097	• Shoulder Harness Instl.	20	–	–	–	–
	2388162	• • Clip (4 ea.)	18	2024-T42 Clad	0.063	–	Replace
	2388162	• • Clip (2 ea.)	19	2024-T42 Clad	0.063	–	Replace
	2388162	• • Support Assy., LH & RH	18	–	–	–	Replace
	2388162	• • • Support	18	2024-T42 Clad	0.063	–	Replace
	2388162	• • Support Assy., LH & RH	19	–	–	–	Replace
	2388162	• • • Support	19	2024-T42 Clad	0.063	–	Replace
	2388162	• • Support, LH & RH	19	2024-T42 Clad	0.063	–	Replace
	3111098	• • Support Assy., LH & RH (2 ea.)	20	–	–	–	Replace
	3111098	• • • Support	20	2024-T42 Clad	0.063	–	Replace
	3111098	• • Angle (2 ea.)	20	2024-T42 Clad	0.040	–	Replace
16	2615101	• Pedestal & Controls Support Structure Instl.	1	–	–	–	–
	2615101	• • Intercostal, LH & RH	1	2024-T42 Clad	0.063	–	Replace
	2315123	• • Bearing Support, LH& RH Fwd	21	2024-T42 Clad	0.050	–	Replace
	2315123	• • Bearing Support, LH & RH Fwd	22	2024-T42 Clad	0.050	–	Replace
	2315123	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2315123	• • Support Frame	1	2024-T42 Clad	0.063	–	Replace
	2315123	• • Bearing Support, LH & RH Aft	1	2024-T42 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511370	• Longeron Instl., LH & RH	1	–	–	–	–
	2511370	• • Attach Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2511370	• • Doubler	1	2024-T3 Clad	0.063	–	Replace
	2411371	• • Aft Drag Block	1	S-517	–	–	Replace
	2511370	• • Longeron	1	2024-T42 Clad	0.100	–	Replace
	2511370	• • Filler	1	2024-T3 Clad	0.100	–	Replace
	2411371	• • Drag Block, Fwd	1	S-5017	–	–	Replace
	2411280	• Door Frame Instl.	1	–	–	–	Replace
	2411280	• • Seal, Top	1	S-308	–	–	Replace
	2411280	• • Seal, Bottom	1	S-308	–	–	Replace
	2411280	• • Seal, Fwd Lower	1	S-308	–	–	Replace
	2411280	• • Seal, Fwd Upper	1	S-308	–	–	Replace
	2411280	• • Seal, Aft Lower	1	S-308	–	–	Replace
	2411280	• • Seal, Aft Upper	1	S-308	–	–	Replace
	2411280	• • Plug (2 ea.)	1	8	–	–	Replace
	2411280	• • Rain Seal Diaphragm	1	Mat. No. 4554	0.013	–	Replace
	2411281	• • Switch Support (8 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2411281	• • Guide Plate (8 ea.)	1	4130 Steel	0.080	–	Replace
	2411281	• • Tube Assy.	1	7	–	–	Replace
	2411281	• • Seal Plate (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2411281	• • Corner Splice, Aft	1	2024-T42 Clad	0.040	–	Replace
	2411281	• • Corner Splice, Fwd	1	2024-T42 Clad	0.040	–	Replace
	2411281	• • Corner Seal Retainer, Lwr Fwd	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Corner Seal Retainer, Lwr Aft	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Corner Seal Retainer, Upr Fwd	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Corner Seal Retainer, Upr Aft	1	2024-T42 Clad	0.032	–	Replace
	2411281	• • Doubler	1	2024-T3 Clad	0.063	–	Replace
	2411281	• • Seal Retainer, Upper	1	2024-T42 Clad	0.040	–	Replace
	2411281	• • Tube Assy.	1	–	–	–	–
	2411281	• • • Tube	1	321 Stainless 10	–	–	Replace
	2411281	• • • Tube	1	321 Stainless 11	–	–	Replace
	2411281	• • Hinge Pin	1	MS20253-2-140	–	–	Replace
	2411281	• • Hinge Half	1	MS20001PX4	–	–	Replace
	2411283	• • Hinge Assy., Upper	1	–	–	–	Replace
	2411283	• • • Hinge Half	1	–	0.050	–	Replace
	2411283	• • • Hinge Pin	1	MS20253-5	–	–	Replace
	2411283	• • • Hinge Half	1	12	0.050	–	Replace
	2411284	• • Seal Retainer, Fwd	1	S-553	–	–	Replace
	2411284	• • Seal Retainer, Aft	1	S-553	–	–	Replace
	2411282	• • Hinge Assy., Lower	1	–	–	–	–
	2411282	• • • Hinge Half (2 ea.)	1	12	0.050	–	Replace
	2411282	• • • Hinge Pin	1	12	0.050	–	Replace
	2411281	• • Plate (3 ea.)	1	301 Stainless 13	0.063	F18	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2318763	• Doubler Instl., LH & RH	2	–	–	–	–
	2318763	• • Angle (2 ea.)	2	2024-T42 Clad	0.050	–	Replace
	2688038	• Doubler Instl. (2 ea.)	24	–	–	–	–
	2688038	• • Angle (2 ea.)	25	2024-T42 Clad	0.050	–	Replace
	2688038	• • Angle (2 ea.)	26	2024-T42 Clad	0.050	–	Replace
	2618397	• Doubler Instl.	23	–	–	–	–
	2618398	• • Doubler	1	2024-T42 Clad	0.020	–	Replace
	2688151	• • Filler	1	2024-T3 Clad	0.090	–	Replace
	2511416	• Shim (18 ea.)	27	2024-T3 Clad	0.032	–	Replace
17	2411325	• External Release Instl.	1	–	–	–	–
	2411323	• • Spacer	1	2024-T4 Rod	0.250	–	Replace
	2411323	• • Bellcrank Drive	1	2024-T351 Plate	0.375	–	Replace
	2411323	• • Angle Assy.	1	–	–	–	Replace
	2411323	• • • Angle	1	S-580	–	–	Replace
	2411323	• • Spacer	1	6061-T6	0.375	–	Replace
	2411323	• • Linkage	1	2024-T4 Plate	0.375	–	Replace
	2411323	• • Linkage	1	2024-T3	0.125	–	Replace
	2411323	• • Bellcrank Idler	1	2024-T351 Plate	0.500	–	Replace
	2411323	• • Pin (2 ea.)	28	2024-T4 Al Rod	0.438	F3	Replace
	2411323	• • Pin (2 ea.)	29	2024-T4 Al Rod	0.438	F3	Replace
	2411323	• • Guide Pin (2 ea.)	1	2024-T351 Plate	0.500	–	Replace
	2411328	• • Flush Latch Handle Assy.	1	–	–	–	–
	2411325	• • • Spring Retainer	1	14	–	–	Replace
	2411328	• • • Spring	1	MS24585-C414	–	–	Replace
18	2611127	• Connector Box Instl.	30	–	–	–	–
	2611118	• • Cover	30	2024-T42 Clad	0.050	–	Replace
	2611123	• • End, LH & RH	30	2024-T42 Clad	0.050	–	Replace
	2611124	• • End, LH & RH	30	2024-T42 Clad	0.050	–	Replace
	2611125	• • Bracket, LH & RH	30	2024-T42 Clad	0.040	–	Replace
	2611125	• • Support	30	2024-T42 Clad	0.040	–	Replace
	2611126	• • Rib, LH & RH	30	2024-T42 Clad	0.071	–	Replace
	2611128	• • Cover Assy., LH & RH	30	–	–	–	–
	2611128	• • • Cover	30	2024-T42 Clad	0.050	–	Replace
	2611128	• • • Support (3 ea.)	30	S-522	–	–	Replace
	2611128	• • • Filler (6 ea.)	30	2024-T42 Clad	0.050	–	Replace
	2511183	• • Seal	30	ABS Therm Plastic	0.063	–	Replace
	2611125	• • Support	30	2024-T42 Clad	0.040	–	Replace
	2611125	• • Support, LH & RH (2 ea.)	30	S-626	–	–	Replace
	2611125	• • Gusset, LH & RH	30	2024-T42 Clad	0.040	–	Replace
	2611125	• • Filler (2 ea.)	30	2024-T3 Clad	0.100	–	Replace
	2511216	• • Bracket, LH & RH	30	2024-T42 Clad	0.063	–	Replace
	2618314	• Doubler (FS 196, between Stringers 10 & 11)	31	2024-T3 Clad	0.080	–	Replace
	2618551	• Doubler (FS 196, between Stringers 10 & 11)	32	2024-T3 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3111116	• Pressurized Connector Box Instl.	33	–	–	–	–
	3111117	• • Cover Assy., LH & RH	33	–	–	–	Replace
	3111119	• • • Cover	33	2024-T42 Clad	0.507	–	Replace
	3111119	• • • Stiffener (3 ea.)	33	S-522	0.032	–	Replace
	3111119	• • • Filler	33	2024-T42 Clad	0.507	–	Replace
	3111118	• • Rib Assy., LH & RH	33	–	–	–	Replace
	3111118	• • • Rib (2 ea.)	33	2024-T42 Clad	0.050	–	Replace
	3111118	• • • Rib	33	2024-T42 Clad	0.071	–	Replace
	3111118	• • • Support	33	2024-T42 Clad	0.040	–	Replace
	3111118	• • • Filler	33	2024-T42 Clad	0.040	–	Replace
	3111119	• • • Angle	33	S-5001	0.010	–	Replace
	3111119	• • • Angle	33	S-5001	0.012	–	Replace
	3111119	• • • Angle	33	S-5001	0.015	–	Replace
	3111119	• • • Seal (4 ea.)	33	16	0.010	–	Replace
	2511332	• Skin Doubler, LH Aft	34	2024-T3 Clad	0.063	–	Replace
19	2511215	• Blower Evaporator Support Structure Instl.	1	–	–	–	–
	2511216	• • Bracket, LH & RH	35	2024-T42 Clad	0.063	–	Replace
	2511216	• • Bracket, LH & RH	36	2024-T42 Clad	0.063	–	Replace
	2511216	• • Channel	37	2024-T42 Clad	0.040	–	Replace
	2511216	• • Clip (2 ea.)	37	2024-T42 Clad	0.040	–	Replace
	2619042	• • Bracket	1	2024-T3 Clad	0.050	–	Replace
	2411321	• Channel (Above Escape Hatch)	1	2024-T42 Clad	0.040	–	Replace
	2311258	• Inner Skin Instl. (FS 160 to 209, RH & LH)	1	–	–	–	–
	2311258	• • Skin, LH & RH	38	2024-T42 Clad	0.050	–	Replace
	2311258	• • Skin, LH & RH	39	2024-T42 Clad	0.050	–	Replace
	2311258	• • Strap	40	2024-T3 Clad	0.050	–	Replace
	2311258	• • Filler	40	2024-T3 Clad	0.160	–	Replace
20	2411320	• Escape Hatch Instl.	1	–	–	–	–
		• • Escape Hatch Assy. (Refer to Chapter 52)	1	–	–	–	–
	2411322	• • Strap	1	2024-T3 Clad	0.250	–	Replace
	2411322	• • Tee Support	1	2024-T351	1.600	–	Replace
	2411322	• • Clip Assy.	1	–	–	–	–
	2411322	• • • Clip Support	1	2024-T3 Clad	0.040	–	Replace
	2411322	• • • Clip	1	NAS1464-038-05C	–	–	Replace
	2411322	• Doubler, Aft Fuselage Window	1	2024-T42 Clad	0.063	–	Replace
	2511674	• Stiffener & Plate Instl., LH & RH	1	–	–	–	–
	2511674	• • Clip (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Angle	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Plate (LH Only)	1	2024-T3 Clad	0.080	–	Replace
	2511674	• • Plate (RH Only)	1	2024-T3 Clad	0.050	–	Replace
	2511674	• • Stiffener (3 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2511674	• • Filler	1	2024-T3 Clad	0.063	–	Replace
	2511674	• • Stiffener	1	2024-T42 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511674	• • Plate	1	2024-T3 Clad	0.050	–	Replace
	2511674	• • Stiffener	1	2024-T42 Clad	0.063	–	Replace
	2511644	• • Fitting	1	–	–	–	Replace
	2411324	• Inner Doubler Assy., (Escape Hatch)	1	–	–	–	–
	2411324	• • Doubler	41	6061-T6	0.040	–	Replace
	2411324	• • Doubler	42	6061-T6	0.040	–	Replace
	2411324	• • Spacer (4 ea.)	41	2024-T42 Clad	A/R	–	Replace
	2411324	• • Spacer (4 ea.)	42	2024-T42 Clad	A/R	–	Replace
	2411326	• • Nut Retainer (4 ea.)	41	2024-T42 Clad	0.040	–	Replace
	2411326	• • Nut Retainer (4 ea.)	42	2024-T42 Clad	0.040	–	Replace
	2411323	• • Plate	41	2024-T3 Clad	0.090	–	Replace
	2411323	• • Plate	42	2024-T3 Clad	0.090	–	Replace
	2411321	• Frame (FS 350, RH Side Only)	1	2024-T42 Clad	0.040	–	Replace
	2489168	• Doubler Instl.	1	–	–	–	–
	2489168	• • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • Radius Filler (4 ea.)	1	2024-T3 Clad	0.125	–	Replace
	2489168	• • Doubler Assy., Fwd (2 ea.)	1	–	–	–	Replace
	2489168	• • • Doubler	1	2024-T3 Clad	0.040	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.190	–	Replace
	2489168	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2489168	• • Filler (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2489168	• • Angle Assy.	1	–	–	–	Replace
	2489168	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.190	–	Replace
	2489168	• Doubler Instl. (ADF Antenna)	2	–	–	–	–
	2489168	• • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • Radius Filler (4 ea.)	1	2024-T3 Clad	0.125	–	Replace
	2489168	• • Doubler Assy., Aft (2 ea.)	1	–	–	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.160	–	Replace
	2489168	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.160	–	Replace
	2489168	• • Filler (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2489168	• • Angle Assy.	1	–	–	–	Replace
	2489168	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2489168	• • • Wedge	1	2024-T3 Clad	0.190	–	Replace
	3118916	• Doubler Instl. (ADF Antenna)	3	–	–	–	–
	3118919	• • Doubler	3	2024-T351 Clad	0.313	–	Replace
21	2411473	• Crew Seat Rails Instl., LH & RH	1	–	–	–	–
	2511580	• • Shim, Laminated (Max. 0.032)	1	[1]	–	–	Replace
	2511580	• • Filler	1	2024-T3 Clad	0.063	–	Replace
	2511580	• • End Plate	1	2024-T42 Clad	0.040	–	Replace
	2511580	• • Clip	1	2024-T3 Clad	0.063	–	Replace
	2511580	• • Filler	1	2024-T3 Clad	0.100	–	Replace
	2511581	• • Clip	1	2024-T3 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511581	• • Intercostal	1	2024-T3 Clad	0.040	–	Replace
	2511581	• • Angle Tie	1	2024-T3 Clad	0.040	–	Replace
	2511581	• • Plate	1	2024-T3 Clad	0.040	–	Replace
	2511581	• • Floor Board Support	43	2024-T42 Clad	0.080	–	Replace
	2511581	• • Floor Board Support	44	2024-T42 Clad	0.080	–	Replace
	2511581	• • Zee, Rail Support	43	2024-T3 Clad	0.040	–	Replace
	2511581	• • Zee, Rail Support	44	2024-T3 Clad	0.040	–	Replace
	2511581	• • Channel, Rail Support	43	2024-T42 Clad	0.040	–	Replace
	2511581	• • Channel, Rail Support	44	2024-T42 Clad	0.040	–	Replace
	2511582	• • Seat Rail (3 ea.)	43	S-537	–	–	Replace
	2511582	• • Seat Rail (3 ea.)	44	S-537	–	–	Replace
	2511580	• • End Plate Assy.	45	–	–	–	Replace
	2511580	• • • End Plate	45	2024-T42 Clad	0.040	–	Replace
	2511580	• • Clip Assy. (2 ea.)	45	–	–	–	Replace
	2511580	• • • Clip (2 ea.)	45	2024-T3 Clad	0.063	–	Replace
	2511581	• • Intercostal Assy. (2 ea.)	45	–	–	–	Replace
	2511581	• • • Intercostal	45	2024-T42 Clad	0.040	–	Replace
	2511581	• • Rail Support Zee Assy. (2 ea.)	45	–	–	–	Replace
	2511581	• • • Zee	45	2024-T3 Clad	0.040	–	Replace
	2511581	• • • Plate	45	2024-T3 Clad	0.040	–	Replace
22	2614063	• Glareshield Instl.	46	–	–	–	–
	2614063	• Glareshield Instl.	47	–	–	–	–
	2614063	• Glareshield Instl.	48	–	–	–	–
	2614063	• • Glareshield	46	2024-T42 Clad	0.050	–	Replace
	2614063	• • Glareshield	49	6061-T6	0.050	–	Replace
	2614063	• • Angle	46	2024-T42 Clad	0.050	–	Replace
	2614063	• • Angle	49	2024-T42 Clad	0.050	–	Replace
	2614063	• • Screen (3 ea.) 15	49	3003-H14 Al	–	–	Replace
	2614063	• • Doubler, LH & RH	49	2024-T3 Clad	0.050	–	Replace
	2614063	• • Doubler, Center	49	2024-T3 Clad	0.050	–	Replace
	2611116	Pressurized Connector Box Instl.	50	–	–	–	–
	2611116	• Plate (2 ea.)	50	2024-T3 Clad	0.050	–	Replace
	2611122	• Cover Assy., LH & RH	51	–	–	–	Replace
	2611122	• Cover Assy., LH & RH	52	–	–	–	Replace
	2611122	• • Support	53	S-707	–	–	Replace
	2611122	• • Channel	53	S-325	–	–	Replace
	2611122	• • Filler (8 ea.)	53	2024-T3 Clad	0.050	–	Replace
	2611116	• Cover	54	2024-T3 Clad	0.050	–	Replace
	2511183	• Seal (8 ea.)	50	16	–	–	Replace
	2611117	• Rib Assy., LH & RH	51	–	–	–	Replace
	2611117	• Rib Assy., LH & RH	55	–	–	–	Replace
	2611117	• Rib Assy., LH & RH	56	–	–	–	Replace
	2611117	• • Rib	50	2024-T3 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611118	• End Assy., LH & RH	51	–	–	–	Replace
	2611118	• End Assy., LH & RH	57	–	–	–	Replace
	2611118	• • End	50	2024-T3 Clad	0.063	–	Replace
	2611119	• End Assy., LH & RH	51	–	–	–	Replace
	2611119	• End Assy., LH & RH	57	–	–	–	Replace
	2611119	• • End	50	2024-T3 Clad	0.063	–	Replace
	2611120	• Angle Assy.	58	–	–	–	Replace
	2611120	• Angle Assy.	59	–	–	–	Replace
	2611120	• • Angle	58	2024-T3 Clad	0.063	–	Replace
	2611120	• • Angle	59	2024-T3 Clad	0.063	–	Replace
	2611122	• Gusset	50	2024-T24 Clad	0.063	–	Replace
	2611122	• Angle, LH & RH	50	S-522	–	–	Replace
	2611122	• Support, LH & RH	60	2024-T3 Clad	0.032	–	Replace
	2611122	• Support, LH & RH	55	2024-T3 Clad	0.032	–	Replace
	2611122	• Cover (2 ea.)	50	2024-T42 Clad	0.050	–	Replace

Fuselage Assembly Repair Index
Figure 2 (Sheet 12 of 15)

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	31-001 THRU 31-034; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
3	31-035 AND SUBSEQUENT
4	31-001 AND SUBSEQUENT; 35-492 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
5	35-001 THRU 35-264; 36-001 AND SUBSEQUENT
6	35-001 THRU 35-477; 36-001 THRU 36-050
7	35-478 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
8	31-001 THRU 31-027; 35-001 THRU 35-658, 35-660 THRU 35-662; 36-001 THRU 36-063
9	31-028 THRU 31-041, 31-043 THRU 31-051; 35-659, 35-663 THRU 35-666
10	31-042, 31-052 AND SUBSEQUENT; 35-676 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
11	35-001 THRU 35-519; 36-001 THRU 36-053
12	35-520 THRU 35-623; 36-054, 36-055
13	35-624 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
14	35-001 THRU 35-534, 35-589, 35-590; 36-001 THRU 36-053
15	35-535 THRU 35-588, 35-591 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
16	35-001 THRU 35-505; 36-001 THRU 36-053
17	31-001 AND SUBSEQUENT; 35-456 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
18	31-001 THRU 31-022, 31-035 THRU 31-038; 35-478 THRU 35-668; 36-051 THRU 36-036
19	31-023 THRU 31-034; 35-662 THRU 35-666
20	31-039 AND SUBSEQUENT; 35-669 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
21	35-001 THRU 35-130; 36-001 THRU 36-033
22	35-131 AND SUBSEQUENT; 36-034 AND SUBSEQUENT
23	36-051 AND SUBSEQUENT
24	35-281 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
25	35-001 THRU 35-281; 36-001 THRU 36-044
26	35-282 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
27	31-011 AND SUBSEQUENT; 35-647 AND SUBSEQUENT; 36-058 AND SUBSEQUENT
28	35-001 THRU 35-264; 36-001 THRU 36-044
29	35-265 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
30	36-001 AND SUBSEQUENT
31	31-001 THRU 31-060; 35-390, 35-394 THRU 35-673; 36-048 THRU 36-063
32	31-061 AND SUBSEQUENT; 35-674 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
33	31 SERIES AIRCRAFT EQUIPPED FOR EXTENDED RANGE
34	31-001 AND SUBSEQUENT; 35-265, 35-369, 35-371 AND SUBSEQUENT
35	35-001 THRU 35-091; 36-001 THRU 36-024
36	35-092 AND SUBSEQUENT; 36-025 AND SUBSEQUENT
37	36-001 THRU 36-059
38	35-001 THRU 35-122, 35-149 AND SUBSEQUENT; 36-001 THRU 36-032, 36-037 AND SUBSEQUENT
39	35-123 THRU 35-148; 36-033 THRU 36-036
40	35-123 AND SUBSEQUENT; 36-042 AND SUBSEQUENT
41	35-001 THRU 35-130; 36-001 THRU 35-034
42	35-131 AND SUBSEQUENT; 36-035 AND SUBSEQUENT

Fuselage Assembly Repair Index
Figure 2 (Sheet 13 of 15)

43	35-001 THRU 35-629; 36-001 THRU 36-055
44	35-630 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
45	31-063 AND SUBSEQUENT; 35-675 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
46	35-001 THRU 35-039; 36-001 THRU 36-016
47	35-040 THRU 35-642; 36-017 AND SUBSEQUENT
48	31-001 AND SUBSEQUENT; 35-643 AND SUBSEQUENT
49	31-001 AND SUBSEQUENT; 35-040 AND SUBSEQUENT; 36-017 AND SUBSEQUENT
50	31-001 AND SUBSEQUENT; 35-370, 35-390 AND SUBSEQUENT
51	35-370, 35-390 THRU 35-508
52	31-001 THRU 31-030; 35-509 THRU 35-664
53	31-001 THRU 31-030; 35-370, 35-390 THRU 35-664
54	31-031 AND SUBSEQUENT; 35-665 AND SUBSEQUENT
55	31-001 THRU 31-072; 35-509 THRU 35-676
56	31-073 AND SUBSEQUENT; 35-677 AND SUBSEQUENT
57	31-001 AND SUBSEQUENT; 35-509 AND SUBSEQUENT
58	31-001 THRU 31-063; 35-001 THRU 35-674
59	31-064 AND SUBSEQUENT; 35-675 AND SUBSEQUENT
60	31-001 THRU 31-072; 35-370, 35-390 THRU 35-676

Fuselage Assembly Repair Index
Figure 2 (Sheet 14 of 15)

NOTES:

1. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.
2. 1/4 OD x 3/16 ID Teflon Tubing
3. 1/2 OD x 3/8 ID Teflon Tubing
4. 3/8 OD x 0.065 Wall Tubing
5. Type FBG or FBM per MIL-P-15035
6. Heat Treat to 180,000 PSI
7. Condition 1/2 Hard
8. Commercial Grade, Low Density Silicon Sponge Rubber
9. 0.650 OD x 0.065 Wall 4130 Steel Tubing
10. 0.187 OD x 0.035 Wall 321 Stainless Steel
11. 0.250 OD x 0.035 Wall 321 Stainless Steel
12. 321 or 347 Stainless Steel
13. Condition 1/4 Hard
14. Make from NAS1169DD10L
15. Screens 3/16. 0.032, 1/4- inch Centers
16. ABS Thermo Plastic 0.063, Optional to make from 0.060 Thermo Formidable Plastic

Fuselage Assembly Repair Index
Figure 2 (Sheet 15 of 15)

FUSELAGE ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

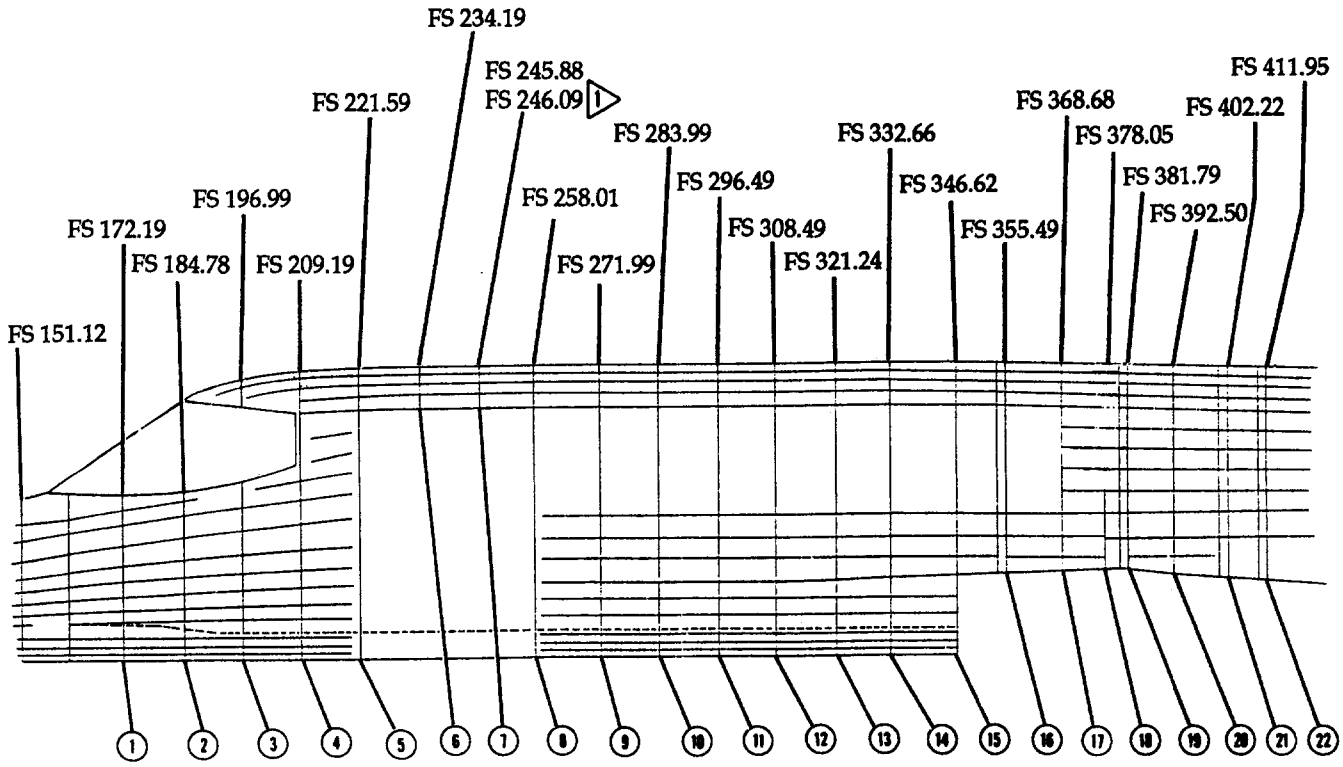
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE FRAMES - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage frame installation consists of frame assemblies, doublers, web assemblies and minor structural subassemblies. The fuselage frames begin at frame 6 and continue through frame 21 and the aft pressure bulkhead.
   B. The fuselage frame installation provides overall structural continuity and aerodynamics of the aircraft.



NOTES:

1 Fuselage Stations for 24-Inch Passenger/Crew Door Configuration.

(TYPICAL)

REPRO

Fuselage Frames Repair Index
Figure 1 (Sheet 1 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611000	Fuselage Frames Instl.	1	–	–	–	–
	2611003	Fuselage Frames Instl.	2	–	–	–	–
1	2411060	• Frame Instl., Frame 6	3	–	–	–	–
	2411060	• • Frame Web, Bottom	3	2024-T42 Clad	0.050	–	51-70-03
	2411060	• • Stiffener (2 ea.)	3	S-522	–	–	Replace
	2411060	• • Gusset	3	2024-T42 Clad	0.080	–	Replace
	2411060	• • Filler (2 ea.)	3	2024-T42 Clad	0.100	–	Replace
	2411060	• • Filler	3	2024-T42 Clad	0.050	–	Replace
	2411060	• • Clip (2 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2411060	• • Frame Web, LH & RH	26	2024-T42 Clad	0.050	–	51-70-03
	2411060	• • Frame Web, LH & RH (2 ea.)	27	2024-T42 Clad	0.050	–	51-70-03
2	2411070	• Frame Instl., Frame 7	3	–	–	–	–
	2411070	• • Web Assy., Upper Center	3	–	–	–	–
	2411070	• • • Frame Web, LH	3	2024-T42 Clad	0.050	–	51-70-03
	2411070	• • Frame Web, Lower Center	3	2024-T42 Clad	0.050	–	51-70-03
	2411070	• • Frame Assy., LH & RH	3	–	–	–	–
	2411070	• • • Angle	3	2024-T42 Clad	0.025	–	Replace
	2411070	• • • Frame Web	26	2024-T42 Clad	0.050	–	51-70-03
	2411070	• • • Frame Web (2 ea.)	27	2024-T3 Clad	0.080	–	51-70-03
	2411070	• • Angle Assy., LH & RH	3	–	–	–	–
	2411070	• • • Angle	3	2024-T42 Clad	0.050	–	Replace
3	2411080	• Frame Instl., Frame 8	3	–	–	–	–
	2411080	• • Web Assy., Top	3	–	–	–	–
	2411080	• • • Web, Top	3	2024-T42 Clad	0.050	–	51-70-03
	2411080	• • • Frame Doubler, LH & RH	3	2024-T42 Clad	0.050	–	Replace
	2411080	• • • Clip, LH & RH	3	2024-T42 Clad	0.040	–	Replace
	2411080	• • Frame Web Assy., LH & RH	3	–	–	–	–
	2411080	• • • Frame	3	2024-T42 Clad	0.050	–	51-70-03
	2411080	• • • Frame Doubler	3	2024-T42 Clad	0.050	–	Replace
	2411080	• • • Filler	3	2024-T3 Clad	0.050	–	Replace
	2411080	• • Web Assy., Bottom	3	2024-T42 Clad	0.050	–	Replace
	2411080	• • • Frame	3	2024-T42 Clad	0.050	–	51-70-03
	2411080	• • • Angle	3	2024-T42 Clad	0.063	–	Replace
	2615124	• • • Clip (2 ea.)	3	2024-T42 Clad	0.050	–	Replace
4	2411090	• Frame Instl., Frame 9	3	–	–	–	–
	2411090	• • Web Assy., Top	4	–	–	–	–
	2411090	• • Web Assy., Top	5	–	–	–	–
	2411090	• • • Frame Web, Top	4	2024-T42 Clad	0.050	–	51-70-03
	2411090	• • • Frame Web, Top	5	2024-T42 Clad	0.050	–	51-70-03
	2411090	• • • Doubler (2 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2411090	• • Web Assy., LH & RH	6	–	–	–	–
	2411090	• • Web Assy., LH & RH	7	–	–	–	–
	2411090	• • • Frame Doubler	3	2024-T42 Clad	0.050	–	Replace
	2411090	• • • Frame Web, LH	6	2024-T42 Clad	0.050	–	51-70-03
	2411090	• • • Frame Web, LH	7	2024-T42 Clad	0.050	–	51-70-03
	2411090	• • • Clip	3	2024-T3 Clad	0.050	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 2 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411090	• • Splice Band (2 ea.)	3	2024-T42 Clad	0.025	–	Replace
	2411090	• • Splice Angle (2 ea.)	3	2024-T42 Clad	0.050	–	51-70-03
5	2411100	• Frame Instl., Frame 10	3	–	–	–	–
	2411100	• • Web Assy., LH	3	–	–	–	–
	2411100	• • • Frame Web	3	2024-0 Clad	0.050	F4-6	51-70-03
	2411100	• • • Frame Doubler	3	4130 Steel	0.040	F9	Replace
	2411100	• • • Plate Doubler	3	301 Stainless	0.020	F17-6	Replace
	2411100	• • Web Assy., Upper	3	–	–	–	–
	2411100	• • • Frame Web, Upper	9	2024-T42 Clad	0.050		51-70-03
	2411100	• • • Frame Web, Upper	10	2024-T42 Clad	0.050	–	51-70-03
	2411100	• • Doubler Assy., LH	3	–	–	–	–
	2411100	• • • Doubler	3	2024-T42 Clad	0.050	–	Replace
	2411100	• • Doubler Assy.	3	–	–	–	–
	2411100	• • • Doubler	4	2024-T42 Clad	0.050	–	Replace
	2411090	• • • Doubler	5	2024-T42 Clad	0.050	–	Replace
	2411100	• • Web Assy., LH Lower	3	–	–	–	–
	2411100	• • • Frame Web, Lower	3	2024-T42 Clad	0.050	–	51-70-03
	2411100	• • • Doubler	8	2024-T42 Clad	0.063	–	Replace
	2411100	• • • Clip	8	2024-T42 Clad	0.050	–	Replace
	2411100	• • Web Assy., Bottom	3	–	–	–	–
	2411100	• • • Frame Web, Bottom	3	2024-T42 Clad	0.050	–	51-70-03
	2411100	• • Splice Band	3	2024-T42 Clad	0.025	–	Replace
	2411100	• • Filler	3	2024-T3 Clad	0.050	–	Replace
	2411100	• • Frame Web, RH	3	2024-T42 Clad	0.050	–	51-70-03
	2411110	• • Splice Angle	3	2024-T42 Clad	0.063	–	Replace
	2513193	• • Angle	3	2024-T42 Clad	0.040	–	Replace
6	2411110	• Frame Instl., Frame 11	3	–	–	–	–
	2411110	• • Frame Web Assy.	3	–	–	–	–
	2411110	• • • Frame Web	3	2024-T42 Clad	0.050	–	51-70-03
	2411110	• • Frame Web Assy., RH	3	–	–	–	–
	2411110	• • • Frame Web	3	2024-T42 Clad	0.050	–	51-70-03
	2411110	• • • Clip Assy.	11	2024-T42 Clad	0.050	–	Replace
	2411110	• • Frame Web (2 ea.)	3	2024-T42 Clad	0.050	–	51-70-03
	2411110	• • Splice Angle (4 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2411110	• • Cap	3	2024-T3 Clad	0.040	–	Replace
7	2411120	• Frame Instl., Frame 12	1	–	–	–	–
	2411120	• • Frame Web Assy.	1	–	–	–	–
	2411120	• • • Frame Web (3 ea.)	1	2024-T42 Clad	0.050	–	51-70-03
	2411120	• • Frame Web Assy.	1	–	–	–	–
	2411120	• • • Frame Web, RH	1	2024-T42 Clad	0.050	–	51-70-03
	2411120	• • • Doubler Assy.	12	–	–	–	–
	2411120	• • • Doubler Assy.	13	–	–	–	–
	2511121	• • • • Doubler	1	2024-T42 Clad	0.050	–	Replace
	2411110	• • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2513193	• • Splice Angle	1	2024-T42 Clad	0.080	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 3 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511121	• Frame Instl., Frame 12	2	–	–	–	–
	2511121	• • Frame Web Assy.	2	–	–	–	–
	2511121	• • • Frame Web, Bottom	2	2024-T42 Clad	0.050	–	51-70-03
	2513193	• • • Splice Angle (2 ea.)	2	2024-T42 Clad	0.080	–	Replace
	2511121	• • • Doubler Assy.	14	–	–	–	–
	2411120	• • • Doubler Assy.	15	–	–	–	–
	2511121	• • • • Doubler	14	2024-T42 Clad	0.050	–	Replace
	2411090	• • • • Doubler	15	2024-T42 Clad	0.050	–	Replace
	2411130	• • • Filler (2 ea.)	2	2024-T3 Clad	0.050	–	Replace
	2411130	• • • Splice Plate	2	2024-T3 Clad	0.050	–	Replace
	2411130	• • • Doubler	2	301 Stainless	0.020	–	Replace
	2411130	• • • Frame Web, Bottom	2	2024-T3 Clad	0.050	–	Replace
	2411120	• • • Frame Web Assy., RH Upper	2	–	–	–	–
	2411120	• • • • Frame Web	2	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Splice Plate	2	2024-T3 Clad	0.050	–	Replace
	2411110	• • • Splice Angle (3 ea.)	2	2024-T42 Clad	0.063	–	Replace
	2511121	• • • Doubler	2	4130 Steel	0.036	–	Replace
	2511121	• • • Frame Web, LH	2	2024-T42 Clad	0.050	–	51-70-03
	2511121	• • • Frame Web, Top	2	2024-T42 Clad	0.050	–	51-70-03
	2511121	• • • Frame Web, RH Bottom	2	2024-T42 Clad	0.050	–	51-70-03
8	2411130	• Frame Instl., Frame 13	1	–	–	–	–
	2411130	• • Frame Assy.	1	–	–	–	–
	2411130	• • • Frame Web, RH Upper	1	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, LH	1	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, Bottom	1	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, Top	1	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, RH Bottom	1	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Filler (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2411130	• • • Splice Plate (3 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2411130	• • • Doubler	1	301 Stainless	0.040	–	Replace
	2411130	• • • Splice Band (3 ea.)	1	2024-T42 Bare	0.025	–	Replace
	2411130	• • • Doubler	1	4130 Steel	0.040	–	Replace
	2411090	• • • Doubler (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2411110	• • • Splice Angle	1	2024-T42 Clad	0.063	–	Replace
	2511130	• Frame Instl., Frame 13	2	–	–	–	–
	2411130	• • Frame Web Assy.	2	–	–	–	–
	2411130	• • • Frame Web (2 ea.)	16	2024-T42 Clad	0.050	–	51-70-03
	2511130	• • • Frame Web (2 ea.)	17	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, RH Upper	2	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, LH Upper	2	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, Bottom	2	2024-T42 Clad	0.050	–	51-70-03
	2411130	• • • Frame Web, RH Bottom	2	2024-T42 Clad	0.050	–	51-70-03
	2411110	• • • Splice Angle	2	2024-T42 Clad	0.063	–	Replace
	2411130	• • • Splice Plate	2	2024-T3 Clad	0.050	–	Replace
	2511130	• • • Splice Plate (3 ea.)	2	2024-T3 Clad	0.050	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 4 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
9	2511137	• Frame (Bulkhead) Instl., Frame 13E	3	–	–	–	–
	2511137	• • Frame Assy., LH & RH	3	–	–	–	–
	2511137	• • • Frame	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, Upper	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, RH (2 ea.)	3	2024-T42 Clad	0.040	–	51-70-03
	2511135	• • Frame Web Assy.	3	–	–	–	–
	2511135	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2511110	• • Splice Angle (6 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2411110	• • Cap (2 ea.)	3	2024-T3 Clad	0.040	–	Replace
10	2511137	• Frame (Bulkhead) Instl., Frame 13D	3	–	–	–	–
	2511137	• • Frame Assy., LH & RH	3	–	–	–	–
	2511137	• • • Frame	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, Upper	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, LH & RH	3	2024-T42 Clad	0.040	–	51-70-03
	2511135	• • Frame Web Assy.	3	–	–	–	–
	2511135	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2511110	• • Splice Angle (4 ea.)	3	2024-T42 Clad	0.063	–	Replace
11	2511137	• Frame (Bulkhead) Instl., Frame 13C	3	–	–	–	–
	2511137	• • Frame Assy., LH & RH	3	–	–	–	–
	2511137	• • • Frame	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, Upper	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, LH & RH	3	2024-T42 Clad	0.040	–	51-70-03
	2511135	• • Frame Web Assy.	3	–	–	–	–
	2511135	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2511110	• • Splice Angle (4 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2511135	• • Splice Band	1	2024-T42 Bare	0.025	–	Replace
12	2511137	• Frame (Bulkhead) Instl., Frame 13B	3	–	–	–	–
	2511137	• • Frame Assy., LH & RH	3	–	–	–	–
	2511137	• • • Frame	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, Upper	3	2024-T42 Clad	0.040	–	51-70-03
	2511137	• • Frame, LH & RH	3	2024-T42 Clad	0.040	–	51-70-03
	2511135	• • Frame Web Assy.	3	–	–	–	–
	2511135	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2511110	• • Splice Angle (4 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2511135	• • Splice Band	1	2024-T42 Bare	0.025	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 5 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
13	2411135	• Frame (Bulkhead) Instl., Frame 13A	3	–	–	–	–
	2411135	• • Web Assy., LH & RH	3	–	–	–	–
	2411135	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2411135	• • Frame Web, LH & RH	3	2024-T42 Clad	0.040	–	51-70-03
	2411135	• • Web Assy., LH & RH Bottom	3	–	–	–	–
	2411135	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2411135	• • Frame Web, Top	3	2024-T42 Clad	0.040	–	51-70-03
	2411135	• • Splice Angle (2 ea.)	3	2024-T42 Clad	0.040	–	Replace
	2411135	• • Clip (4 ea.)	3	2024-T42 Clad	0.040	–	Replace
14	2411140	• Frame Instl., Frame 14	3	–	–	–	–
	2411140	• • Frame Assy., LH & RH Lower	3	–	–	–	–
	2411140	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2411140	• • Frame Web, Lower LH & RH	3	2024-T42 Clad	0.040	–	51-70-03
	2411140	• • Frame Web, Top	3	2024-T42 Clad	0.040	–	51-70-03
	2411140	• • Frame Web Assy.	3	–	–	–	–
	2411140	• • • Frame Web	3	2024-T42 Clad	0.040	–	51-70-03
	2411135	• • Clip (4 ea.)	3	2024-T42 Clad	0.040	–	Replace
	2411140	• • Clip (2 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2411140	• • Splice Angle (2 ea.)	3	2024-T42 Clad	0.040	–	Replace
	2411110	• • Splice Angle	3	2024-T42 Clad	0.063	–	Replace
15	2511150	• Frame Instl., Frame 15	3	–	–	–	–
	2511150	• • Frame Web, LH & RH	3	2024-T42 Clad	0.050	–	51-70-03
	2511150	• • Frame Web	3	2024-T42 Clad	0.050	–	51-70-03
	2511150	• • Strap	3	2024-T3	0.100	–	Replace
	2511150	• • Filler	3	2024-T3	0.063	–	Replace
	2311152	• • Longeron Fitting (2 ea.)	3	S-578	–	–	51-70-04
	2311150	• • Strap	3	2024-T3 Clad	0.100	–	Replace
	2511150	• • Splice Band (2 ea.)	3	2024-T42 Clad	0.025	–	Replace
	2511150	• • Clip	3	2024-T42 Clad	0.050	–	Replace
	2411110	• • Splice Angle	3	2024-T42 Clad	0.063	–	Replace
16	2411160	• Frame Instl., Frame 16	3	–	–	–	–
	2411160	• • Frame Assy.	3	–	–	–	–
	2411160	• • • Frame, LH & RH Aft	3	2024-T42 Clad	0.063	–	Replace
	2411160	• • • Frame, LH & RH Fwd	3	2024-T42 Clad	0.063	–	Replace
	2411160	• • • Frame, Top Aft	3	2024-T42 Clad	0.063	–	Replace
	2411160	• • • Frame, Top Fwd	3	2024-T42 Clad	0.063	–	Replace
	2411160	• • • Inner Cap, LH & RH	3	2024-T42 Clad	0.063	–	Replace
	2411160	• • • Splice Angle, (4 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2411160	• • • Splice Plate	3	2024-T3 Clad	0.063	–	Replace
	2411161	• • • Support, LH & RH Aft	3	2024-T42 Clad	0.063	–	Replace
	2411161	• • • Support, LH & RH Fwd	3	2024-T42 Clad	0.063	–	Replace
	2411161	• • • Bracket, LH & RH	3	2024-T42 Clad	0.040	–	Replace
	2411161	• • • Doubler	19	2024-T3 Clad	0.063	–	Replace
	2411161	• • Splice Plate	18	2024-T3 Clad	0.040	–	Replace
	2311161	• • Fitting Assy.	3	–	–	–	51-71-00
	2811161	• • Doubler	19	2024-T3 Clad	0.063	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 6 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
17	2411170	• Frame Instl., Frame 17	3	–	–	–	–
	2411170	• • Filler	3	2024-T3 Clad	0.160	–	Replace
	2411170	• • Channel, LH & RH	3	2024-T42 Clad	0.063	–	Replace
	2411171	• • Gusset, LH & RH	3	2024-T42 Clad	0.040	–	Replace
	2411110	• • Splice Angle	3	2024-T42 Clad	0.063	–	Replace
18	2511175	• Frame (Bulkhead) Instl., Frame 17A, LH & RH	3	–	–	–	–
	2511175	• • Doubler, LH & RH Fwd	3	2024-T42 Clad	0.063	–	Replace
	2511175	• • Doubler, LH & RH Aft	3	2024-T42 Clad	0.063	–	Replace
	2511175	• • Angle	3	2024-T3 Clad	0.050	–	Replace
	2311175	• • Splice Plate (2 ea.)	20	2024-T3 Clad	0.160	–	Replace
	2511228	• • Splice Plate (2 ea.)	21	2024-T3 Clad	0.160	–	Replace
	2311175	• • Washer (2 ea.)	22	2024-T3 Clad	0.100	–	Replace
	2511175	• • Washer (2 ea.)	23	2024-T3 Clad	0.100	–	Replace
	2311175	• • Filler (2 ea.)	22	2024-T3 Clad	0.050	–	Replace
	2511175	• • Filler (2 ea.)	23	2024-T3 Clad	0.050	–	Replace
	2511175	• • Skin, LH & RH	3	2024-T42 Clad	0.050	–	Replace
	2511175	• • Frame, LH & RH	3	2024-T42 Clad	0.063	–	51-70-03
19	2511180	• Frame Instl., Frame 18	25	–	–	–	–
	2511180	• • Bulkhead Assy.	25	–	–	–	–
	2511180	• • • Doubler	25	2024-T3 Clad	0.071	–	Replace
	2511180	• • • Closeout, LH & RH	25	2024-T42 Clad	0.032	–	Replace
	2511180	• • • Inner Cap	25	2024-T42 Clad	0.071	–	Replace
	2511180	• • • Filler	25	2024-T3 Clad	0.071	–	Replace
	2511180	• • • Frame, Top Fwd	25	2024-T42 Clad	0.063	–	Replace
	2511180	• • • Channel, Top Aft	25	2024-T42 Clad	0.063	–	Replace
	2511180	• • • Frame, Fwd LH & RH	25	2024-T42 Clad	0.063	–	Replace
	2511180	• • • Channel, LH & RH Aft	25	2024-T42 Clad	0.063	–	Replace
	2311181	• • • Fitting, LH & RH	25	S-613	–	–	–
	2411180	• • • Splice Angle	25	2024-T42 Clad	0.080	–	Replace
	2411180	• • • Angle	25	2024-T42 Clad	0.040	–	Replace
	2511181	• • • Doubler, LH & RH Fwd	25	2024-T42 Clad	0.050	–	Replace
	2511181	• • • Doubler, LH & RH Aft	25	2024-T42 Clad	0.050	–	Replace
	2511182	• • • Gusset, LH & RH	25	2024-T42 Clad	0.050	–	Replace
	2411180	• • • Gusset, LH & RH	25	2024-T42 Clad	0.032	–	Replace
	2611181	• • • Reinforcement Doubler	25	2024-T3 Clad	0.050	–	Replace
	2511184	• • • Pressure Bulkhead Instl.	25	–	–	–	–
	2511184	• • • • Doubler	25	2024-T3 Clad	0.063	–	Replace
	2511184	• • • • Mounting Plate	25	2024-T3 Clad	0.125	–	Replace
	2511184	• • • • Doubler	25	2024-T3 Clad	0.063	–	Replace
	2511184	• • • • Panel	25	–	–	–	Replace
	2511183	• • Seal, LH & RH	25	ABS Therm Plastic	0.063	–	Replace
	2511183	• • Seal, Tee Stringer	25	ABS Therm Plastic	0.063	–	Replace
	2611181	• • Seal Plate	25	2024-T3 Clad	0.050	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 7 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411180	• Frame Instl., Frame 18	24	–	–	–	–
	2411180	• • Frame Assy.	24	–	–	–	–
	2511180	• • • Channel, Top Aft	24	2024-T42 Clad	0.063	–	Replace
	2411180	• • • Channel, Top Fwd	24	2024-T42 Clad	0.063	–	Replace
	2311181	• • • Fitting, LH & RH	24	S-613	–	–	–
	2411180	• • • Gusset (3 ea.)	24	2024-T42 Clad	0.032	–	Replace
	2411180	• • • Inner Cap, LH & RH	24	2024-T42 Clad	0.063	–	Replace
	2411180	• • • Channel, LH & RH Aft	24	2024-T42 Clad	0.063	–	Replace
	2411180	• • • Channel, LH & RH Fwd	24	2024-T42 Clad	0.063	–	Replace
	2411180	• • • Sleeve	24	5052-0 Tube	0.035	–	Replace
	2411180	• • • Angle, LH & RH	24	2024-T42 Clad	0.040	–	Replace
	2411180	• • • Splice Angle (2 ea.)	24	2024-T42 Clad	0.080	–	Replace
	2511180	• • • Channel, Top Aft	24	2024-T42 Clad	0.063	–	Replace
	2511180	• • • Frame, Fwd LH & RH	24	2024-T42 Clad	0.063	–	Replace
	2411180	• • • Splice Angle	24	2024-T42 Clad	0.080	–	Replace
	2411180	• • • Splice Plate	24	2024-T42 Clad	0.063	–	Replace
20	2511190	• Frame Instl., Frame 19	3	–	–	–	–
	2511190	• • Frame Web, LH & RH	3	2024-T42 Clad	0.063	–	Replace
	2511190	• • *Safety Band (3 ea.)*	*3*	*2024-T42 Clad*	*0.025*	–	*Replace*
	2311190	• • Splice Angle	3	2024-T42 Clad	0.063	–	Replace
21	2511200	• Frame Instl., Frame 20	3	–	–	–	–
	2511200	• • Frame Assy.	3	–	–	–	–
	2511200	• • • Frame Web, Upper Aft	3	2024-T42 Clad	0.050	–	Replace
	2511200	• • • Frame Web, Upper Fwd	3	2024-T42 Clad	0.050	–	Replace
	2511200	• • • Frame Web, LH & RH Aft	3	2024-T42 Clad	0.050	–	Replace
	2511200	• • • Frame Web, LH & RH Fwd	3	2024-T42 Clad	0.050	–	Replace
	2411180	• • • Splice Angle (4 ea.)	3	2024-T42 Clad	0.080	–	Replace
	2311201	• • • Fitting, LH & RH (2 ea.)	3	–	–	–	51-71-00
	2511200	• • • Inner Cap Strip (2 ea.)	3	2024-T3 Clad	0.050	–	Replace
	2311200	• • • Reinf. Channel, LH & RH	3	2024-T42 Clad	0.080	–	Replace
	2311210	• • Seal Bracket, LH & RH	3	2024-T42 Clad	0.032	–	Replace
	2511210	• • Splice Angle	3	301 Stainless	0.020	F17-6	Replace
22	2511210	• Frame Instl., Frame 21	3	–	–	–	–
	2511210	• • Frame Assy.	3	–	–	–	–
	2511210	• • • Frame, Top Aft	3	2024-T42 Clad	0.050	–	Replace
	2511210	• • • Frame, Top Fwd	3	2024-T42 Clad	0.050	–	Replace
	2511210	• • • Frame, Lower LH	3	2024-T42 Clad	0.050	–	Replace
	2511210	• • • Frame, Fwd Lower RH	3	2024-T42 Clad	0.050	–	Replace
	2511210	• • • Frame, Aft Lower LH	3	2024-T42 Clad	0.050	–	Replace
	2511210	• • • Aft Frame, Lower RH	3	2024-T42 Clad	0.050	–	Replace
	2511210	• • • Inner Splice Plate	3	301 Stainless	0.020	F17-6	Replace
	2511210	• • • Inner Cap Strip	3	2024-T3 Clad	0.050	–	Replace
	2511210	• • • Inner Cap Strip	3	2024-T3 Clad	0.050	–	Replace

Fuselage Frames Repair Index
Figure 1 (Sheet 8 of 9)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311210	• • • Seal Bracket, LH & RH	3	2024-T42 Clad	0.032	–	Replace
	2311210	• • • Reinf. Channel, LH & RH	3	2024-T42 Clad	0.050	–	Replace
	2311211	• • • Fitting, LH & RH (2 ea.)	3	–	–	–	51-71-00
	2311212	• • • Fitting, LH & RH	3	–	–	–	51-71-00
	2411180	• • • Splice Angle (2 ea.)	3	2024-T42 Clad	0.080	–	Replace
	2411180	• • • Splice Angle	3	2024-T42 Clad	0.080	–	Replace

CODES	EFFECTIVITIES
1	31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT, ALL WITH 36-INCH PASSENGER/CREW DOOR
2	31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT, ALL WITH 24-INCH PASSENGER/CREW DOOR
3	31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	31-002 THRU 31-047; 35-001 THRU 35-672; 36-001 THRU 36-063
5	31-048 AND SUBSEQUENT; 35-673 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
6	31-002 THRU 31-062; 35-001 THRU 35-674; 36-001 THRU 36-063
7	31-064 AND SUBSEQUENT; 35-675 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
8	35-001 THRU 35-626; 36-001 THRU 36-055
9	31-002 THRU 31-038; 35-001 THRU 35-668; 36-001 THRU 36-063
10	31-039 AND SUBSEQUENT; 35-669 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
11	35-001 THRU 35-618; 36-001 THRU 36-055
12	31-002 THRU 31-034; 35-001 THRU 35-669; 36-001 THRU 36-063, ALL WITH 36-INCH PASSENGER/CREW DOOR
13	31-035 AND SUBSEQUENT; 35-670 AND SUBSEQUENT; 36-064 AND SUBSEQUENT, ALL WITH 36-INCH PASSENGER/CREW DOOR
14	35-001 THRU 35-317; 36-001 THRU 36-045
15	31-002 AND SUBSEQUENT; 35-318 AND SUBSEQUENT; 36-046 AND SUBSEQUENT
16	35-001 THRU 35-034, EXCEPT 35-028; 36-001 THRU 36-017, 36-019
17	31-002 AND SUBSEQUENT; 35-028, 35-035 AND SUBSEQUENT; 36-018, 36-020 AND SUBSEQUENT
18	35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
19	31-002 AND SUBSEQUENT
20	35-001 THRU 35-182; 36-001 THRU 36-038
21	31-002 AND SUBSEQUENT; 35-183 AND SUBSEQUENT; 36-039 AND SUBSEQUENT
22	35-001 THRU 35-280; 36-001 THRU 36-044z
23	31-002 AND SUBSEQUENT; 35-281 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
24	35-001 AND SUBSEQUENT; 31-002 AND SUBSEQUENT
25	36-001 AND SUBSEQUENT
26	31-002 THRU 31-088; 35-001 THRU 35-676; 36-001 THRU 36-063
27	31-089 AND SUBSEQUENT; 35-677 AND SUBSEQUENT; 36-064 AND SUBSEQUENT

Fuselage Frames Repair Index
Figure 1 (Sheet 9 of 9)

FUSELAGE FRAMES - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage frames is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

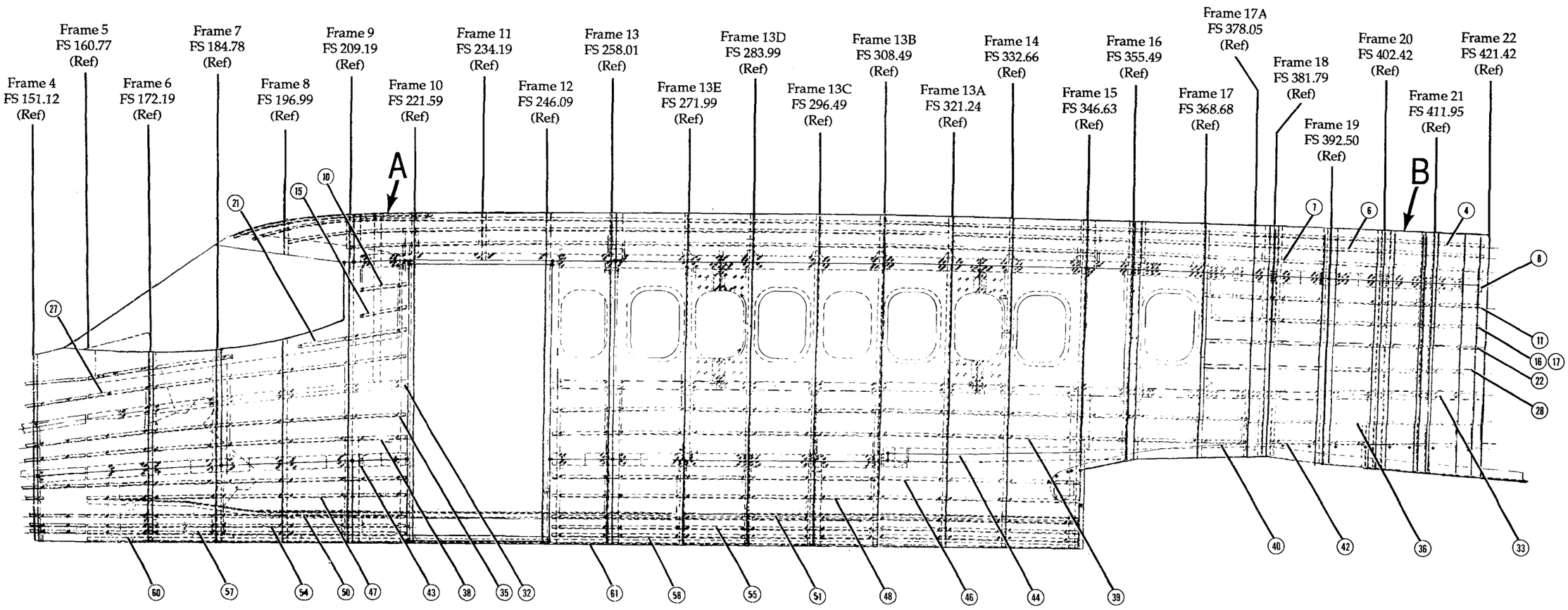
FUSELAGE FRAMES - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage stringers provide longitudinal support to the overall composition of the fuselage. The stringers are located around the perimeter of the frames. A total of 41 stringers, spaced approximately 5-inches apart are made of aluminum extrusion and cut to various lengths.
   B. The fuselage stringers installation provides overall structural continuity and aerodynamics of the aircraft.
   C. The fuselage stringer repair index figures are separated into 24" and 36" passenger/crew door configurations.

FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION

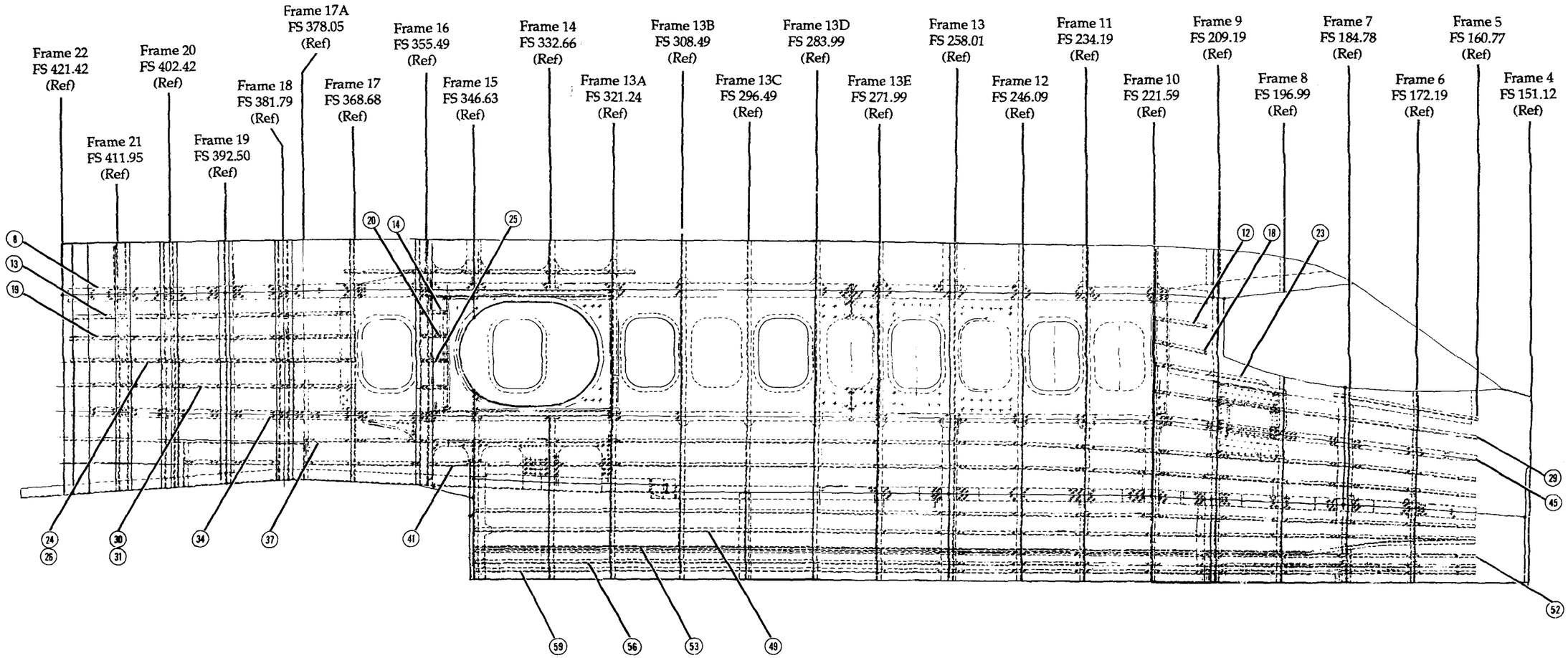


(VIEW LH SIDE LOOKING INBOARD)

(TYPICAL)

Fuselage Stringers Repair Index
Figure 1 (Sheet 1 of 7)

FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION



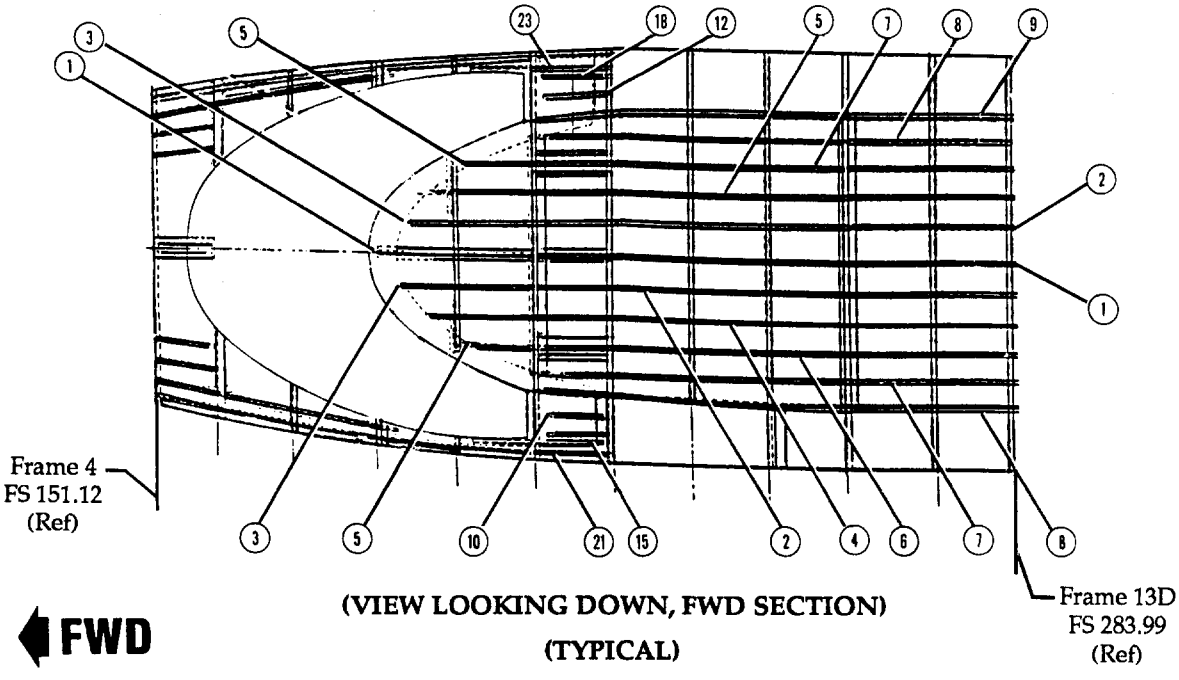
(VIEW RH SIDE LOOKING INBOARD)

(TYPICAL)

2-151D

Fuselage Stringers Repair Index
Figure 1 (Sheet 2 of 7)

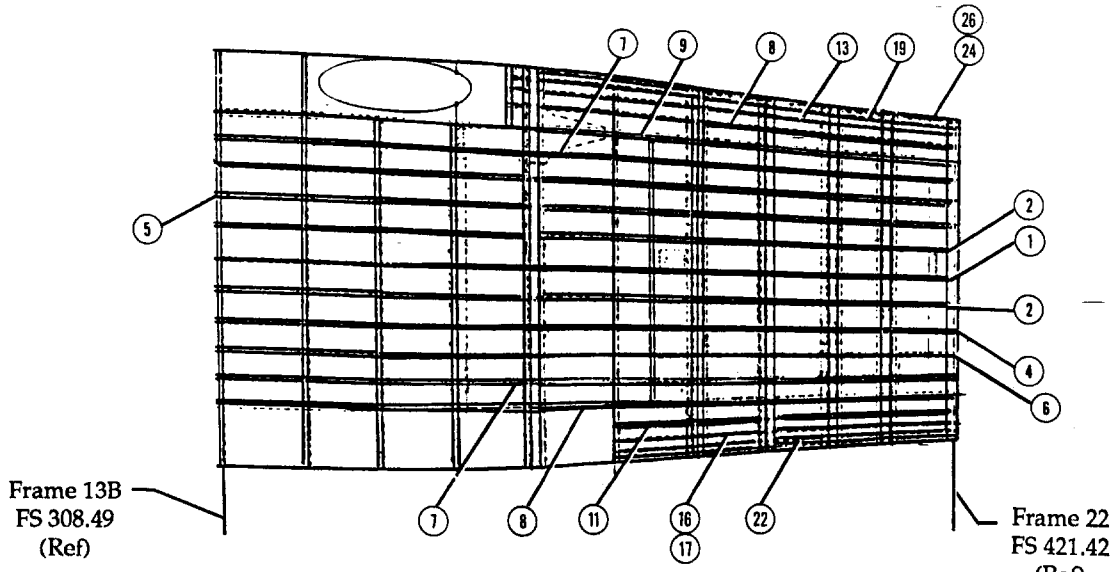
FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION



(VIEW LOOKING DOWN, FWD SECTION)

(TYPICAL)

Detail A



(VIEW LOOKING DOWN, AFT SECTION)

(TYPICAL)

Detail B

2-152D

Fuselage Stringers Repair Index
Figure 1 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611003	Fuselage Stringer Instl.	1	–	–	–	–
1	2611007	• Stringer (C/L) (FS 216.62 to 420.92)	1	S-554	–	–	51-70-04
2	2611007	• Stringer No. 2 LH & RH (FS 216.62 to 420.92)	2	S-554	–	–	51-70-04
	2611007	• Stringer No. 2 LH & RH (FS 216.62 to 420.92)	3	S-554	–	–	51-70-04
3	2411000	• Stringer No. 2 LH & RH (FS 183.03 to 207.73)	1	S-554	–	–	51-70-04
4	2611007	• Stringer No. 3 LH & RH (FS 216.62 to 420.92)	2	S-554	–	–	51-70-04
	2611007	• Stringer No. 3 LH & RH (FS 216.62 to 420.92)	3	S-554	–	–	51-70-04
5	2411000	• Stringer No. 3 LH & RH (FS 186.03 to 217.73)	1	S-554	–	–	51-70-04
	2411000	• Stringer No. 3 LH & RH (FS 194.87 to 217.13)	1	S-554	–	–	51-70-04
6	2611007	• Stringer No. 4 LH (FS 206.62 to 420.92)	2	S-554	–	–	51-70-04
	2611007	• Stringer No. 4 RH (FS 206.62 to 420.92)	3	S-554	–	–	51-70-04
7	2611007	• Stringer No. 5 LH (FS 206.62 to 420.92)	2	S-554	–	–	51-70-04
	2611007	• Stringer No. 5 LH (FS 206.62 to 420.92)	3	S-554	–	–	51-70-04
8	2611007	• Stringer No. 6 LH (FS 210.06 to 420.92)	2	S-681 [1]	–	–	51-70-04
	2611007	• Stringer No. 6 LH (FS 210.06 to 420.92)	3	S-681 [1]	–	–	51-70-04
9	2611007	• Stringer No. 6 RH (FS 210.06 to 420.92)	1	S-681 [1]	–	–	51-70-04
10	2411000	• Stringer No. 7 LH (FS 206.95 to 219.64)	1	S-554	–	–	51-70-04
11	2411000	• Stringer No. 7 LH (FS 368.90 to 420.92)	4	S-554	–	–	51-70-04
	2611000	• Stringer No. 7 LH (FS 368.90 to 420.92)	5	S-554	–	–	51-70-04
12	2411000	• Stringer No. 7 RH (FS 210.06 to 219.64)	1	S-554	–	–	51-70-04
13	2611000	• Stringer No. 7 RH (FS 368.90 to 420.92)	1	S-554	–	–	51-70-04
14	2611000	• Stringer No. 7 RH (FS 351.96 to 357.40)	1	S-554	–	–	51-70-04

Fuselage Stringers Repair Index
Figure 1 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	2411000	• Stringer No. 8 LH (FS 206.95 to 219.64)	1	S-554	–	–	51-70-04
16	2411000	• Stringer No. 8 LH (FS 399.77 to 420.92)	1	S-554	–	–	51-70-04
17	2511000	• Stringer No. 8 LH (FS 348.68 to 420.92)	5	S-554	–	–	51-70-04
18	2411000	• Stringer No. 8 RH (FS 210.06 to 221.32)	1	S-554	–	–	51-70-04
19	2611000	• Stringer No. 8 RH (FS 368.86 to 420.92)	4	S-554	–	–	51-70-04
	2511000	• Stringer No. 8 RH (FS 368,86 to 420.92)	5	S-554	–	–	51-70-04
20	2611000	• Stringer No. 8 RH (FS 351.46 to 357.40)	1	S-554	–	–	51-70-04
21	2411000	• Stringer No. 9 LH (FS 199.17 to 219.64)	1	S-554	–	–	51-70-04
	2411000	• Stringer No. 9 LH (FS 160.87 to 187.53)	1	S-554	–	–	51-70-04
22	2411000	• Stringer No. 9 LH (FS 368.90 to 420.92)	4	S-554	–	–	51-70-04
	2511000	• Stringer No. 9 LH (FS 368.90 to 420.92)	5	S-554	–	–	51-70-04
23	2411000	• Stringer No. 9 RH (FS 199.73 to 221.40)	1	S-554	–	–	51-70-04
	2411000	• Stringer No. 9 RH (FS 161.27 to 187.53)	1	S-554	–	–	51-70-04
24	2611000	• Stringer No. 9 RH (FS 368.90 to 420.92)	4	S-554	–	–	51-70-04
25	2611000	• Stringer No. 9 RH (FS 351.96 to 357.40)	4	S-554	–	–	51-70-04
26	2411000	• Stringer No. 9 RH (FS 368.90 to 420.92)	5	S-554	–	–	51-70-04
27	2411000	• Stringer No. 10 LH (FS 160.83 to 219.64)	1	S-554	–	–	51-70-04
28	2411000	• Stringer No. 10 LH (FS 346.73 to 420.92)	1	S-554	–	–	51-70-04
29	2411000	• Stringer No. 10 RH (FS 161.27 to 221.47)	5	S-554	–	–	51-70-04
30	2611000	• Stringer No. 10 RH (FS 415.48 to 420.92)	4	S-554	–	–	51-70-04
31	2611000	• Stringer No. 10 RH (FS 351.96 to 420.92)	4	S-554	–	–	51-70-04
	2411000	• Stringer No. 10 RH (FS 368.90 to 420.92)	5	S-554	–	–	51-70-04
	2611000	• Stringer No. 10 RH (FS 351.96 to 357.40)	4	S-554	–	–	51-70-04

Fuselage Stringers Repair Index
Figure 1 (Sheet 5 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
32	2411000	• Stringer No. 11 LH (FS 160.83 to 219.64)	1	S-566	–	–	51-70-04
33	2611007	• Stringer No. 11 LH (FS 247.60 to 420.92)	1	S-566	–	–	51-70-04
34	2611007	• Stringer No. 11 RH (FS 368.90 to 420.92)	1	S-566	–	–	51-70-04
35	2411000	• Stringer No. 12 LH (FS 160.83 to 219.64)	2	S-566	–	–	51-70-04
	2411000	• Stringer No. 12 LH (FS 160.83 to 219.64)	3	S-554	–	–	51-70-04
36	2611007	• Stringer No. 12 LH (FS 247.60 to 378.00)	1	S-554	–	–	51-70-04
37	2611007	• Stringer No. 12 RH (FS 159.23 to 377.83)	1	S-554	–	–	51-70-04
38	2411000	• Stringer No. 13 LH (FS 180.63 to 219.64)	1	S-554	–	–	51-70-04
39	2611007	• Stringer No. 13 LH (FS 247.60 to 354.10)	1	S-554	–	–	51-70-04
40	2411000	• Stringer No. 13 LH & RH (FS 356.80 to 377.93)	1	S-554	–	–	51-70-04
41	2611007	• Stringer No. 13 RH (FS 159.28 to 354.98)	1	S-554	–	–	51-70-04
42	2511000	• Stringer No. 12A LH & RH (FS 382.70 to 399.61)	1	S-554	–	–	51-70-04
43	2411000	• Stringer No. 14 LH (FS 160.83 to 219.64)	1	S-681 [1]	–	–	51-70-04
44	2611007	• Stringer No. 14 LH (FS 247.60 to 313.60)	1	S-681 [1]	–	–	51-70-04
45	2611007	• Stringer No. 14 RH (FS 159.24 to 311.54)	1	S-681 [1]	–	–	51-70-04
46	2611007	• Stringer No. 15 LH (FS 247.60 to 346.60)	1	S-554	–	–	51-70-04
	2611007	• Stringer No. 15 RH (FS 159.13 to 346.60)	1	S-554	–	–	51-70-04
47	2411000	• Stringer No. 16 LH (FS 160.83 to 219.64)	1	S-554	–	–	51-70-04
48	2611007	• Stringer No. 16 LH (FS 247.60 to 346.60)	1	S-554	–	–	51-70-04
49	2611007	• Stringer No. 16 RH (FS 244.30 to 345.30)	1	S-554	–	–	51-70-04
50	2411000	• Stringer No. 17 LH (FS 160.83 to 219.64)	1	S-554	–	–	51-70-04
51	2611007	• Stringer No. 17 LH (FS 259.52 to 346.60)	1	S-554	–	–	51-70-04

Fuselage Stringers Repair Index
Figure 1 (Sheet 6 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
52	2411000	• Stringer No. 17 RH (FS 161.27 to 220.08)	1	S-554	–	–	51-70-04
53	2611007	• Stringer No. 17 RH (FS 213.63 to 346.53)	1	S-554	–	–	51-70-04
54	2411000	• Stringer No. 18 LH (FS 160.83 to 219.64)	1	S-554	–	–	51-70-04
55	2611007	• Stringer No. 18 LH (FS 247.60 to 346.60)	1	S-554	–	–	51-70-04
56	2611007	• Stringer No. 18 RH (FS 159.13 to 346.53)	1	S-554	–	–	51-70-04
57	2411000	• Stringer No. 19 LH (FS 160.83 to 219.64)	1	S-554	–	–	51-70-04
58	2611007	• Stringer No. 19 LH (FS 247.60 to 346.53)	1	S-554	–	–	51-70-04
59	2611007	• Stringer No. 19 RH (FS 159.13 to 346.53)	1	S-554	–	–	51-70-04
60	2411000	• Stringer No. 21 LH & RH (FS 160.83 to 172.09)	1	S-554	–	–	51-70-04
61	2611007	• Stringer No. 21 LH & RH (FS 170.83 to 346.53)	1	S-554	–	–	51-70-04

CODES **EFFECTIVITIES**

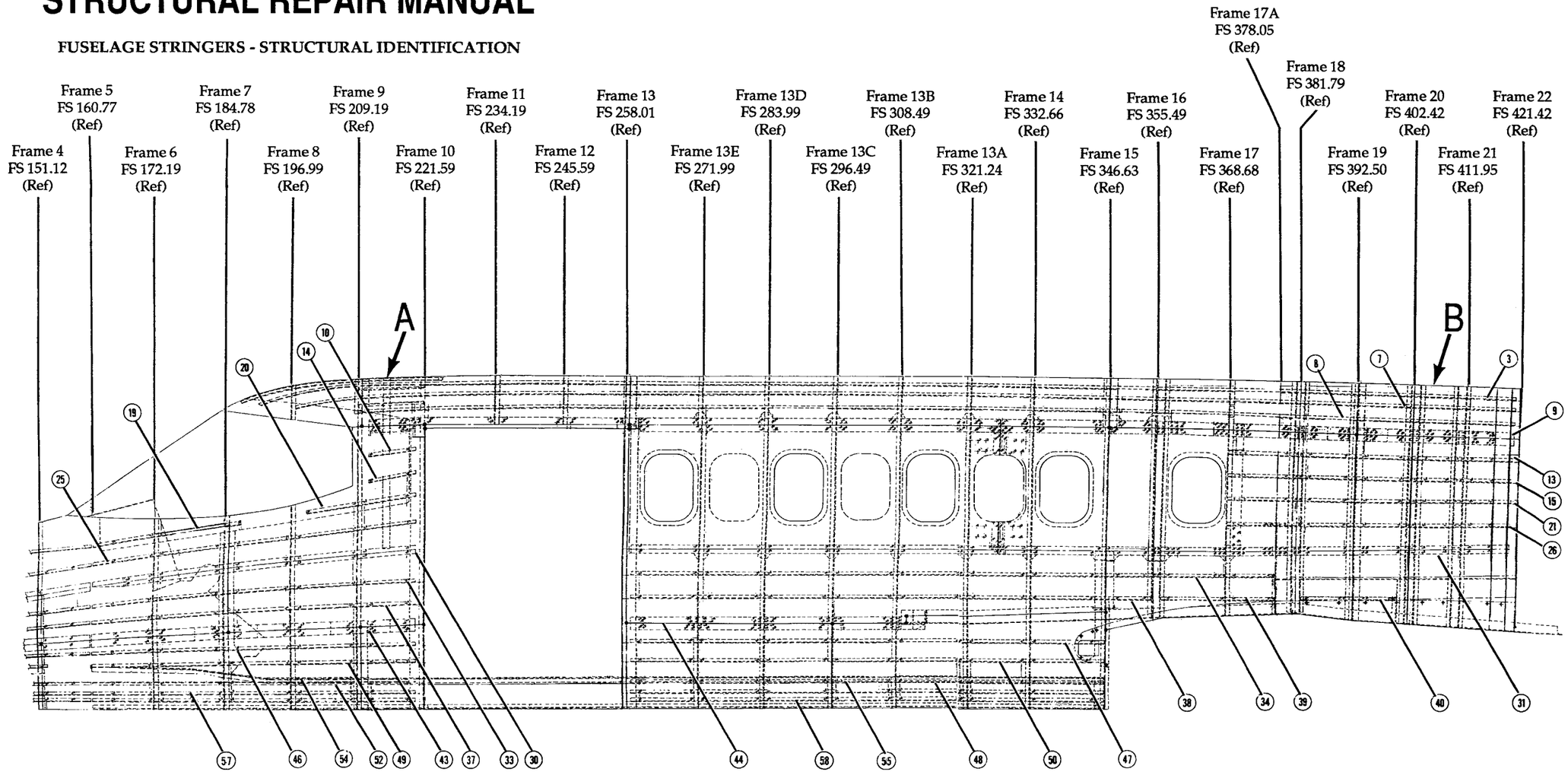
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-001 THRU 35-369, 35-371 THRU 35-389; 36-001 THRU 36-047
3	35-370, 35-390 AND SUBSEQUENT; 36-048 AND SUBSEQUENT
4	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT
5	36-001 AND SUBSEQUENT

NOTES:

1> Optional to manufacture from S-5093.

Fuselage Stringers Repair Index
Figure 1 (Sheet 7 of 7)

FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION

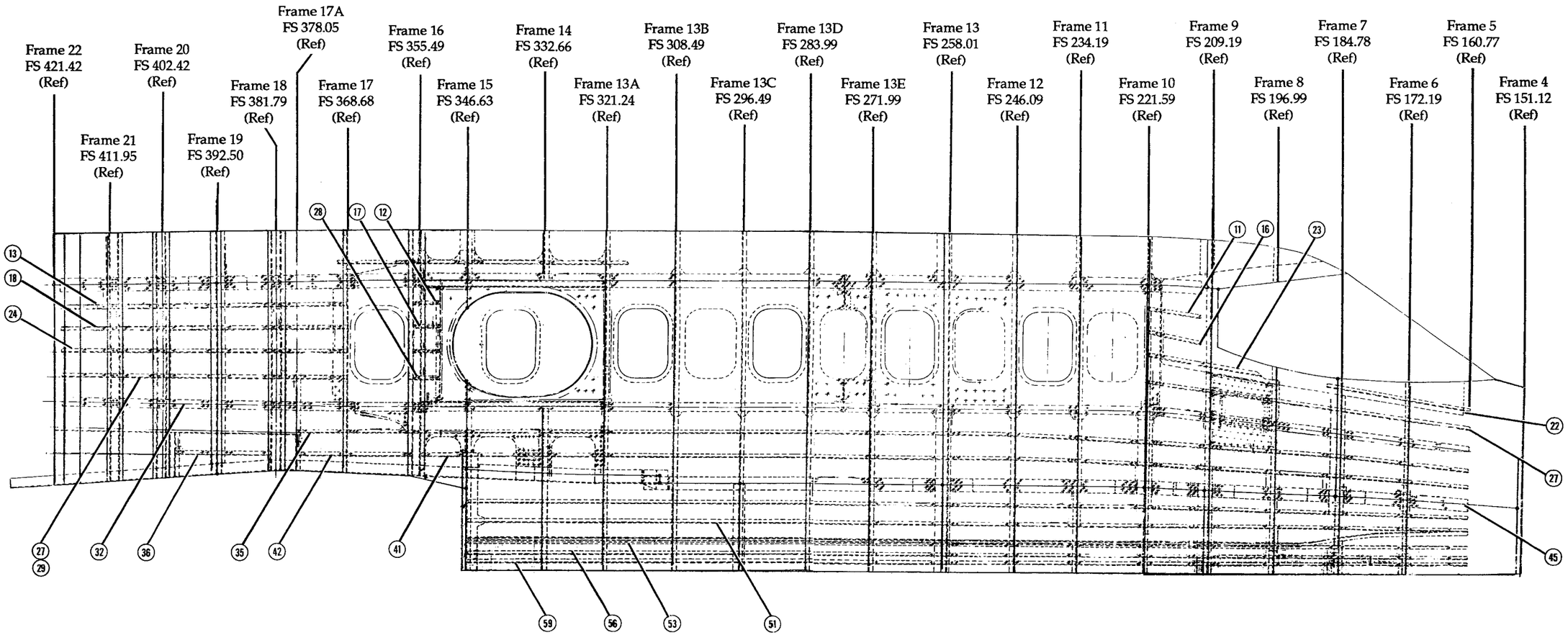


(VIEW LH SIDE LOOKING INBOARD)

(TYPICAL)

Fuselage Stringers Repair Index
Figure 2 (Sheet 1 of 7)

FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION



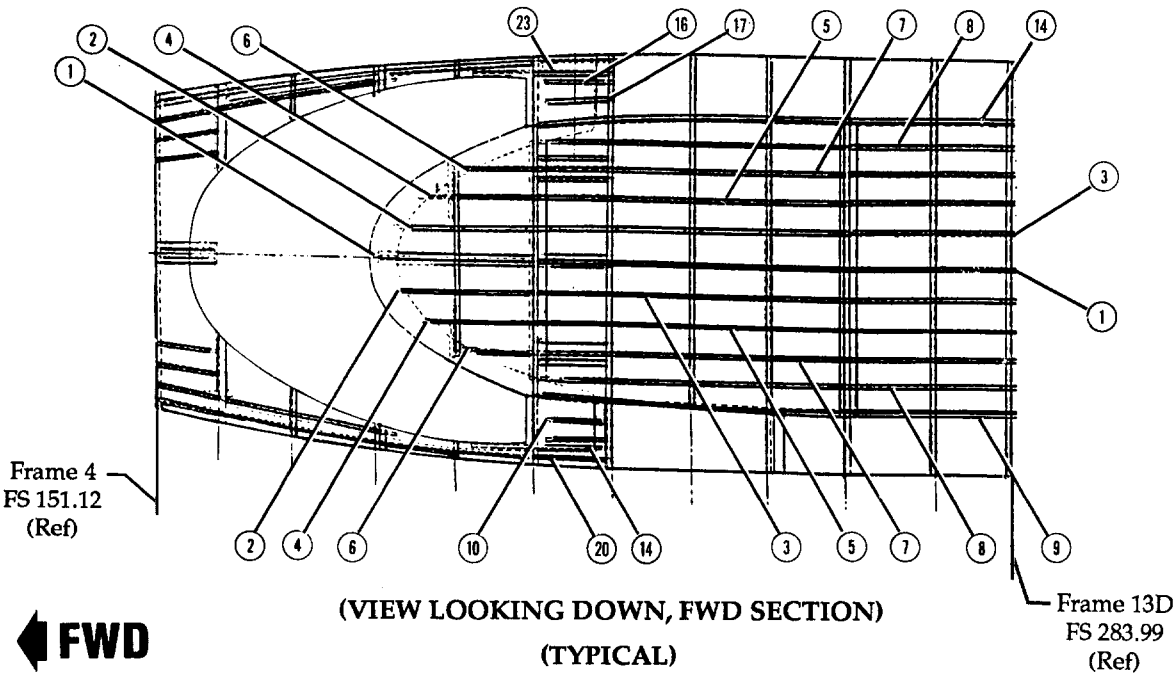
(VIEW RH SIDE LOOKING INBOARD)

(TYPICAL)

2-149D

Fuselage Stringers Repair Index
Figure 2 (Sheet 2 of 7)

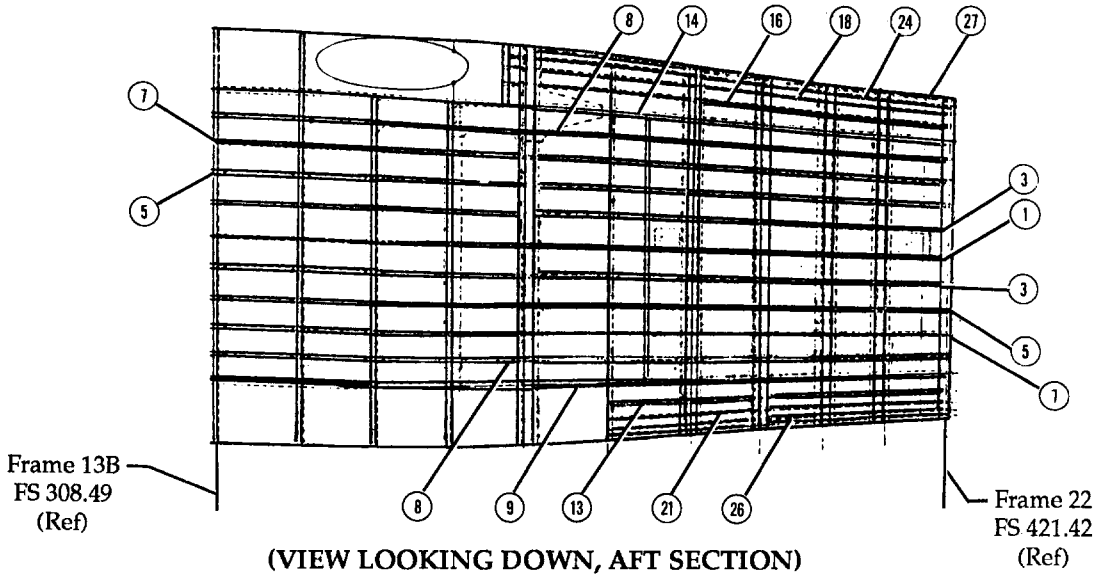
FUSELAGE STRINGERS - STRUCTURAL IDENTIFICATION



(VIEW LOOKING DOWN, FWD SECTION)

(TYPICAL)

Detail A



(VIEW LOOKING DOWN, AFT SECTION)

(TYPICAL)

Detail B

2-152D

Fuselage Stringers Repair Index
Figure 2 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611000	Fuselage Stringer Instl.	1	–	–	–	–
1	2611000	• Stringer (C/L) (FS 218.59 to 420.92)	1	S-554	–	–	51-70-04
2	2411000	• Stringer No. 2 LH & RH (FS 183.73 to 215.43)	1	S-554	–	–	51-70-04
3	2611000	• Stringer No. 2 LH & RH (FS 215.43 to 420.92)	1	S-554	–	–	51-70-04
4	2411000	• Stringer No. 3 LH & RH (FS 183.73 to 215.43)	1	S-554	–	–	51-70-04
5	2611000	• Stringer No. 3 LH & RH (FS 215.43 to 420.92)	1	S-554	–	–	51-70-04
6	2411000	• Stringer No. 4 LH & RH (FS 196.14 to 215.43)	1	S-554	–	–	51-70-04
7	2611000	• Stringer No. 4 LH & RH (FS 215.43 to 420.92)	1	S-554	–	–	51-70-04
8	2611000	• Stringer No. 5 LH & RH (FS 209.87 to 420.92)	1	S-554	–	–	51-70-04
9	2611000	• Stringer No. 6 LH (FS 208.51 to 420.92)	1	S-681	–	–	51-70-04
	2611000	• Stringer No. 6 RH (FS 208.51 to 420.92)	2	S-681	–	–	51-70-04
	2611000	• Stringer No. 6 LH (FS 208.51 to 420.92)	3	S-5093	–	–	51-70-04
10	2411000	• Stringer No. 7 LH (FS 208.47 to 221.16)	1	S-554	–	–	51-70-04
	2611000	• Stringer No. 7 LH (FS 368.90 to 420.92)	2	S-554	–	–	51-70-04
	2611000	• Stringer No. 7 LH (FS 346.78 to 420.92)	3	S-554	–	–	51-70-04
11	2411000	• Stringer No. 7 RH (FS 208.47 to 222.73)	1	S-554	–	–	51-70-04
12	2611000	• Stringer No. 7 RH (FS 351.96 to 357.40)	2	S-554	–	–	51-70-04
13	2611000	• Stringer No. 7 RH (FS 368.90 to 420.92)	2	S-554	–	–	51-70-04
	2611000	• Stringer No. 7 RH (FS 351.96 to 420.92)	3	S-554	–	–	51-70-04
14	2411000	• Stringer No. 8 LH (FS 208.47 to 221.16)	1	S-554	–	–	51-70-04
15	2411000	• Stringer No. 8 LH (FS 399.77 to 420.92)	2	S-554	–	–	51-70-04
	2511000	• Stringer No. 8 LH (FS 346.73 to 420.92)	3	S-554	–	–	51-70-04

Fuselage Stringers Repair Index
Figure 2 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
16	2411000	• Stringer No. 8 RH (FS 208.47 to 222.73)	1	S-554	–	–	51-70-04
17	2611000	• Stringer No. 8 RH (FS 351.96 to 357.40)	2	S-554	–	–	51-70-04
18	2611000	• Stringer No. 8 RH (FS 368.90 to 420.92)	2	S-554	–	–	51-70-04
	2411000	• Stringer No. 8 RH (FS 368.90 to 420.92)	3	S-554	–	–	51-70-04
19	2411000	• Stringer No. 9 LH (FS 160.77 to 186.43)	1	S-554	–	–	51-70-04
20	2411000	• Stringer No. 9 LH (FS 200.99 to 221.16)	1	S-554	–	–	51-70-04
21	2411000	• Stringer No. 9 LH (FS 368.90 to 420.92)	2	S-554	–	–	51-70-04
	2511000	• Stringer No. 9 LH (FS 346.73 to 420.92)	3	S-554	–	–	51-70-04
22	2411000	• Stringer No. 9 RH (FS 160.77 to 187.03)	1	S-554	–	–	51-70-04
23	2411000	• Stringer No. 9 RH (FS 199.44 to 221.16)	1	S-554	–	–	51-70-04
24	2611000	• Stringer No. 9 RH (FS 368.90 to 420.92)	1	S-554	–	–	51-70-04
	2611000	• Stringer No. 9 RH (FS 351.96 to 357.40)	2	S-554	–	–	51-70-04
	2411000	• Stringer No. 9 RH (FS 368.90 to 420.92)	3	S-554	–	–	51-70-04
25	2411000	• Stringer No. 10 LH (FS 160.77 to 221.16)	1	S-554	–	–	51-70-04
26	2411000	• Stringer No. 10 LH (FS 368.90 to 420.92)	2	S-554	–	–	51-70-04
	2511000	• Stringer No. 10 LH (FS 346.73 to 420.92)	3	S-554	–	–	51-70-04
27	2611000	• Stringer No. 10 RH (FS 351.96 to 357.40)	1	S-554	–	–	51-70-04
	2411000	• Stringer No. 10 RH (FS 321.24 to 378.05)	1	S-554	–	–	51-70-04
28	2611000	• Stringer No. 10 RH (FS 351.96 to 357.40)	2	S-554	–	–	51-70-04
29	2411000	• Stringer No. 10 RH (FS 368.90 to 420.92)	3	S-554	–	–	51-70-04
30	2411000	• Stringer No. 11 LH (FS 162.65 to 221.16)	1	S-566	–	–	51-70-04
31	2611000	• Stringer No. 11 LH (FS 259.32 to 420.92)	1	S-566	–	–	51-70-04

Fuselage Stringers Repair Index
Figure 2 (Sheet 5 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
32	2611000	• Stringer No. 11 RH (FS 161.27 to 420.92)	1	S-566	–	–	51-70-04
33	2411000	• Stringer No. 12 LH (FS 162.65 to 221.16)	1	S-554	–	–	51-70-04
34	2611000	• Stringer No. 12 LH (FS 239.52 to 377.89)	1	S-554	–	–	51-70-04
35	2611000	• Stringer No. 12 RH (FS 161.27 to 377.89)	1	S-554	–	–	51-70-04
36	2511000	• Stringer No. 12A RH (FS 382.76 to 399.61)	1	S-554	–	–	51-70-04
37	2411000	• Stringer No. 13 LH (FS 162.65 to 221.16)	1	S-554	–	–	51-70-04
38	2611000	• Stringer No. 13 LH (FS 259.52 to 354.58)	1	S-554	–	–	51-70-04
39	2411000	• Stringer No. 13 LH (FS 355.49 to 378.05)	1	S-554	–	–	51-70-04
40	2511000	• Stringer No. 13 LH (FS 382.70 to 399.61)	1	S-554	–	–	51-70-04
41	2611000	• Stringer No. 13 RH (FS 161.27 to 354.98)	1	S-554	–	–	51-70-04
42	2411000	• Stringer No. 13 RH (FS 356.92 to 378.05)	1	S-554	–	–	51-70-04
43	2411000	• Stringer No. 14 LH (FS 160.77 to 221.16)	1	S-5093	–	–	51-70-04
44	2611000	• Stringer No. 14 LH (FS 259.52 to 311.54)	1	S-5093	–	–	51-70-04
45	2611000	• Stringer No. 14 RH (FS 161.27 to 311.54)	1	S-5093	–	–	51-70-04
46	2411000	• Stringer No. 15 LH (FS 160.77 to 221.16)	1	S-554	–	–	51-70-04
47	2611000	• Stringer No. 15 LH (FS 259.32 to 346.45)	1	S-554	–	–	51-70-04
48	2611000	• Stringer No. 15 RH (FS 161.27 to 346.45)	1	S-554	–	–	51-70-04
49	2411000	• Stringer No. 16 LH (FS 160.77 to 221.16)	1	S-554	–	–	51-70-04
50	2611000	• Stringer No. 16 LH (FS 259.32 to 346.45)	1	S-554	–	–	51-70-04
51	2611000	• Stringer No. 16 RH (FS 161.27 to 346.45)	1	S-554	–	–	51-70-04
52	2411000	• Stringer No. 17 LH & RH (FS 160.77 to 221.16)	1	S-554	–	–	51-70-04
	2611000	• Stringer No. 17 LH (FS 259.52 to 346.45)	1	S-554	–	–	51-70-04

Fuselage Stringers Repair Index
Figure 2 (Sheet 6 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
53	2611000	• Stringer No. 17 RH (FS 215.59 to 346.45)	1	S-554	–	–	51-70-04
54	2411000	• Stringer No. 18 LH (FS 160.77 to 221.16)	1	S-554	–	–	51-70-04
55	2611000	• Stringer No. 18 LH (FS 259.52 to 346.45)	1	S-554	–	–	51-70-04
56	2611000	• Stringer No. 18 RH (FS 162.27 to 346.45)	1	S-554	–	–	51-70-04
57	2411000	• Stringer No. 19 LH (FS 160.77 to 221.16)	1	S-554	–	–	51-70-04
58	2611000	• Stringer No. 19 LH (FS 172.29 to 346.45)	1	S-554	–	–	51-70-04
59	2611000	• Stringer No. 19 RH (FS 161.27 to 346.45)	1	S-554	–	–	51-70-04
	2411000	• Stringer No. 21 LH & RH (FS 160.77 to 172.01)	1	S-554	–	–	51-70-04
	2611000	• Stringer No. 21 LH & RH (FS 172.29 to 346.45)	1	S-554	–	–	51-70-04

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT
3	36-001 AND SUBSEQUENT

Fuselage Stringers Repair Index
Figure 2 (Sheet 7 of 7)

FUSELAGE STRINGERS - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage stringers is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

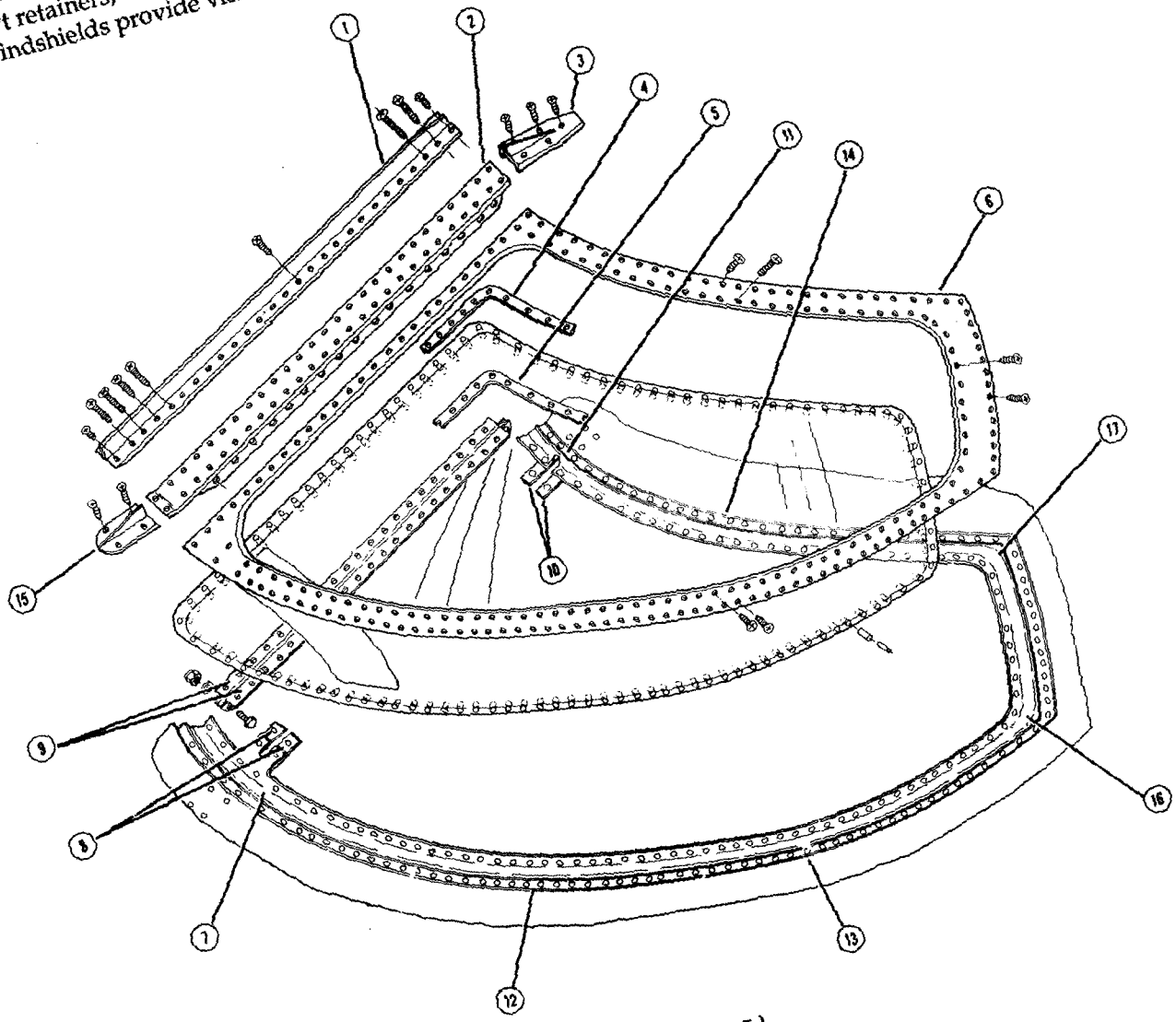
Allowable Material Thickness
Figure 101

FUSELAGE STRINGERS - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

WINDSHIELD STRUCTURE - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The windshield installation consists of pilot's and copilot's impact resistant windshields, structural support retainers, fittings, spacers and attaching hardware.
   B. The windshields provide visibility and structural support to the flight compartment.



(TYPICAL)

(LH WINDSHIELD SHOWN)

Windshield Structure Repair Index
Figure 1 (Sheet 1 of 2)

EFFECTIVITY: 31-002 THRU 31-029; 35-001 THRU 35-670; 36-001 THRU 36-063

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311260	Windshield Installation	1	–	–	–	–
1	2311268	• Center Post, Outer	1	S-604	–	–	Replace
2	2311268	• Center Post, Inner	1	S-604	–	–	Replace
3	2311269	• Center Post, Top Fitting	2	–	–	–	Replace
	2311269	• Center Post, Top Fitting	3	–	–	–	Replace
4	2311260	• Outer Gasket (2 ea.)	1	▷1	–	–	Replace
5	2311260	• Inner Gasket (2 ea.)	1	▷1	–	–	Replace
6	2311260	• Retainer, LH & RH	1	2024-T42 Clad	0.090	–	Replace
7	2311260	• Retainer, Inner Fwd	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Doubler, Top Fwd	1	2024-T3 Clad	0.040	–	Replace
	2311260	• Filler (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
8	2311260	• Splice	1	2024-T3 Clad	0.090	–	Replace
9	2311257	• Angle, LH & RH Center Post	1	S-680	–	–	Replace
10	2311260	• Splice (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
11	2311260	• Retainer, LH & RH Inner	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Seal Plate	1	2024-T3 Clad	0.025	–	Replace
	2311260	• Doubler, Inner Fwd	1	2024-T42 Clad	0.040	–	Replace
	2311260	• Spacer (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2311260	• Splice Angle	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Channel, Upper LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2311260	• Channel, Lower LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2311260	• Splice	1	2024-T42 Clad	0.090	–	Replace
12	2311260	• Splice, LH & RH Lower	1	2024-T42 Clad	0.080	–	Replace
13	2311260	• Retainer, LH & RH Inner	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Doubler, LH & RH Lower Fwd	1	2024-T42 Clad	0.040	–	Replace
	2311260	• Doubler, LH & RH	1	2024-T42 Clad	0.063	–	Replace
14	2311260	• Splice, LH & RH Upper	1	2024-T42 Clad	0.080	–	Replace
15	2311259	• Center Post, Lower Fitting	1	S-604	–	–	Replace
16	2311260	• Clip (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311260	• Filler (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2311260	• Filler (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311260	• Filler (2 ea.)	1	2024-T3 Clad	0.093	–	Replace
17	2311260	• Clip (4 ea.)	1	2024-T42 Clad	0.040	–	Replace

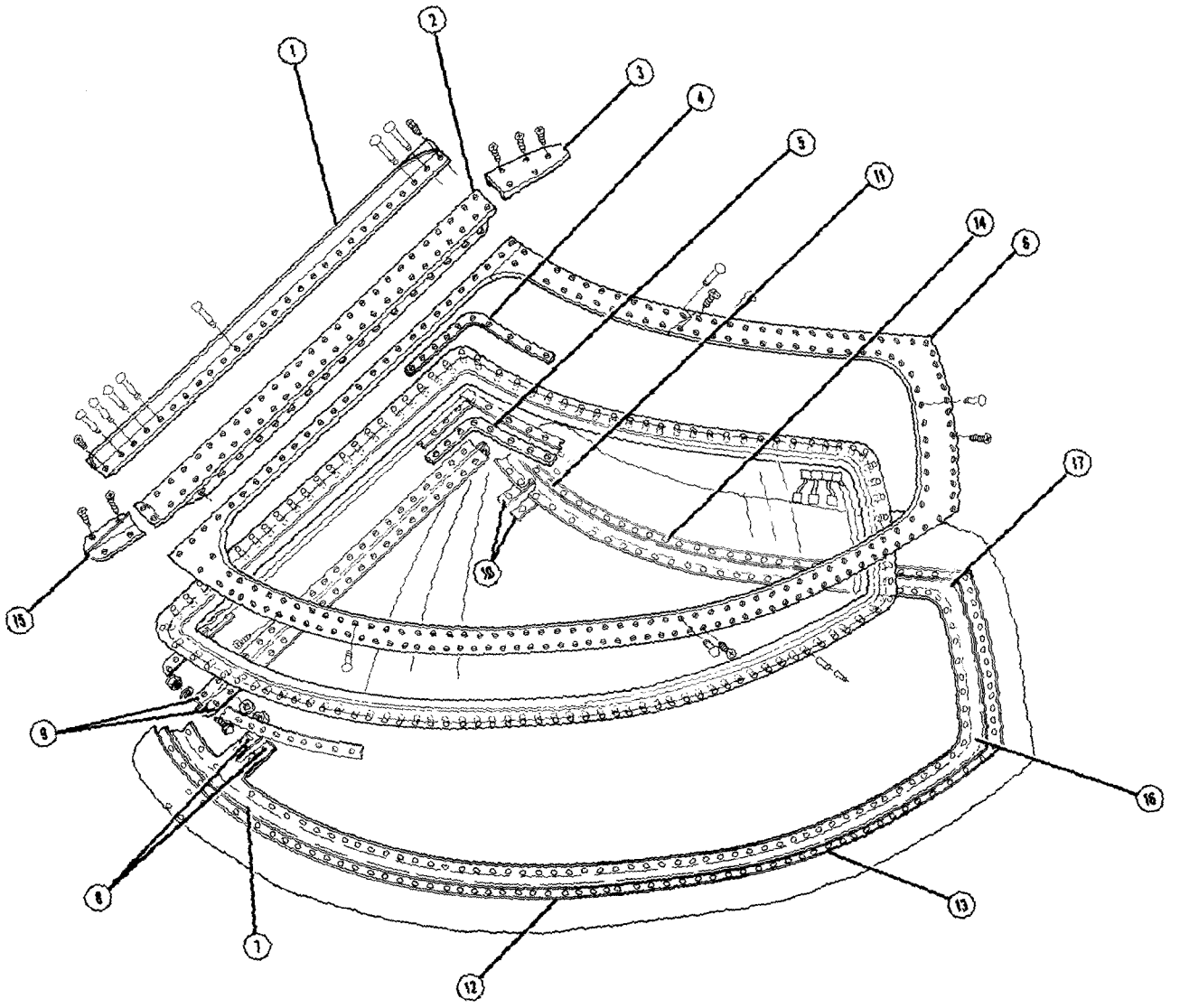
CODES **EFFECTIVITIES**

1	31-002 THRU 31-029; 35-001 THRU 35-670; 36-001 THRU 36-063
2	35-001 THRU 35-542. 35-589 THRU 35-596; 36-001 THRU 36-053
3	31-002 THRU 31-029; 35-543 THRU 35-588, 35-597 THRU 35-670; 36-054 THRU 36-063

NOTES:

▷1 Dacron 2000 reinforced Silastic 55U

Windshield Structure Repair Index
Figure 1 (Sheet 2 of 2)



(TYPICAL)

(LH WINDSHIELD SHOWN)

Windshield Structure Repair Index
Figure 2 (Sheet 1 of 2)

EFFECTIVITY: 31-030 AND SUBSEQUENT; 35-671 AND SUBSEQUENT; 36-064 AND SUBSEQUENT

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611260	Windshield Installation	1	–	–	–	–
1	2311268	• Center Post, Outer	1	S-604	–	–	Replace
2	2311268	• Center Post, Inner	1	S-604	–	–	Replace
3	2311269	• Center Post, Top Fitting	1	–	–	–	Replace
4	2311260	• Outer Gasket (2 ea.)	1	[1]	–	–	Replace
5	2311260	• Inner Gasket (2 ea.)	1	[1]	–	–	Replace
6	2611260	• Retainer, LH & RH	1	2024-T42 Clad	0.090	–	Replace
7	2311260	• Retainer, Inner Fwd	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Filler (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
8	2311260	• Splice	1	2024-T3 Clad	0.090	–	Replace
9	2611260	• Support, LH & RH	1	7075-0	0.080	F4-6-1	Replace
10	2611260	• Splice (2 ea.)	1	2024-T42 Clad	0.080	F4-6	Replace
11	2611260	• Retainer, LH & RH Inner	1	2024-T42 Clad	0.090	–	Replace
	2311260	• Doubler, Fwd	1	2024-T42 Clad	0.040	–	Replace
	2611260	• Doubler, Fwd	1	301 Stainless	0.032	–	Replace
	2311260	• Splice Angle	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Channel, Upper LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2311260	• Channel, Lower LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2611137	• Support Assy., LH & RH	1	2024-T42 Clad	0.063	–	Replace
	2611260	• Doubler, LH & RH	1	2024-T3 Clad	0.063	F4-6	Replace
	2611260	• Filler	1	2024-T3 Clad	0.040	F4-6	Replace
	2611260	• Filler (6 ea.)	1	Silicone Sheet	0.125	–	Replace
	2611260	• Splice Strap, LH & RH	1	2024-T3 Clad	0.063	F4-6	Replace
	2611260	• Ramp (12 ea.)	1	301 Stainless	0.032	F17-6	Replace
	2311260	• Splice	1	2024-T42 Clad	0.090	–	Replace
12	2311260	• Splice, LH & RH Lower	1	2024-T42 Clad	0.080	–	Replace
	2311260	• Shim	1	2024-T3 Clad	0.100	–	Replace
13	2311260	• Retainer, LH & RH Inner	1	2024-T42 Clad	0.063	–	Replace
	2311260	• Doubler, LH & RH Lower Fwd	1	2024-T42 Clad	0.040	–	Replace
	2311260	• Doubler, LH & RH	1	2024-T42 Clad	0.063	–	Replace
14	2311260	• Splice, LH & RH Upper	1	2024-T42 Clad	0.080	–	Replace
15	2311259	• Center Post, Lower Fitting	1	S-604	–	–	Replace
16	2311260	• Clip (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2311260	• Filler	1	2024-T3 Clad	0.040	–	Replace
	2311260	• Filler (4 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2311260	• Filler (2 ea.)	1	2024-T3 Clad	0.093	–	Replace
17	2311260	• Clip (8 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2413270	• Clip (8 ea.)	1	2024-T42 Clad	0.040	–	Replace

CODES **EFFECTIVITIES**

1 31-030 AND SUBSEQUENT; 35-671 AND SUBSEQUENT; 36-064 AND SUBSEQUENT

NOTES:

[1] Dacron 2000 reinforced Silastic 55U

Windshield Structure Repair Index
Figure 2 (Sheet 2 of 2)

WINDSHIELD STRUCTURE - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the windshield assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

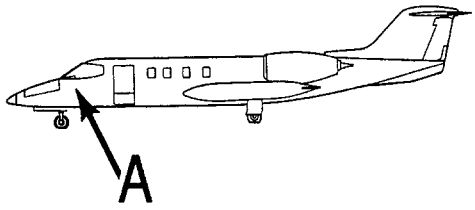
Allowable Material Thickness
Figure 101

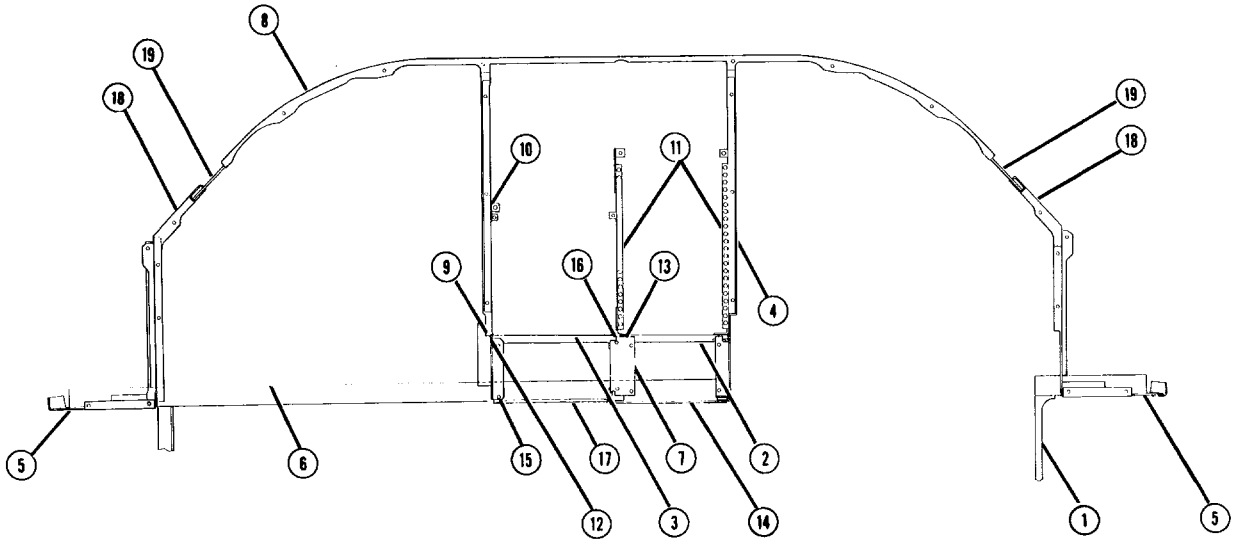
1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE INSTRUMENT PANEL SUPPORT STRUCTURE - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage instrument panel support structure is located at Frame 6 in the forward cockpit area. The support structure provides structural support and mounting provisions for various avionic, communications, instrumentation and associated equipment.

FUSELAGE INSTRUMENT PANEL SUPPORT STRUCTURE - STRUCTURAL IDENTIFICATION





(VIEW LOOKING FORWARD)

(TYPICAL)

Detail A

16-74C

Fuselage Instrument Panel Support Structure Repair Index
Figure 1 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2614017	Structural Support Instl., Instrument Panel	1	–	–	–	–
	2614017	• Structure Assy., Instrument Panel	1	–	–	–	–
	2614017	• • Support Assy.	1	–	–	–	Replace
	2614017	• • • Support	2	2024-T42 Clad	0.050	–	Replace
1	2614017	• • • Support	3	2024-T42 Clad	0.063	–	Replace
	2614017	• • Support Assy.	1	–	–	–	Replace
	2614017	• • • Support	1	2024-T42 Clad	0.050	–	Replace
	2614017	• • Tray Assy.	4	–	–	–	Replace
	2614059	• • Tray Assy.	5	–	–	–	Replace
	2614017	• • • Tray	4	2024-T42 Clad	0.050	–	Replace
2	2614059	• • • Tray	5	2024-T42 Clad	0.050	–	Replace
	2614060	• • • Strap Assy.	1	–	–	–	Replace
	2614060	• • • • Strap	1	2024-T42 Clad	0.032	–	Replace
	2614271	• • • • Hinge	1	[1]	–	–	Replace
	2614060	• • • • Hinge	4	[2]	–	–	Replace
3	2614017	• • Clip (3 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2614017	• • Clip (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2614017	• • Clip (3 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2614017	• • Support (2 ea.)	4	2024-T42 Clad	0.032	–	Replace
4	2614017	• • Support LH & RH	5	2024-T42 Clad	0.050	–	Replace
5	2614017	• • Bracket, LH & RH	1	2024-T42 Clad	0.032	–	Replace
	2614017	• • Angle, LH & RH	2	2024-T42 Clad	0.050	–	Replace
	2614017	• • Angle, LH & RH	3	2024-T42 Clad	0.040	–	Replace
	2614017	• • Angle (3 ea.)	1	2024-T42 Clad	0.050	–	Replace
6	2614017	• • Channel	1	2024-T42 Clad	0.090	–	Replace
7	2614017	• • Support	1	2024-T42 Clad	0.050	–	Replace
8	2614017	• • Bow Assy.	1	–	–	–	Replace
	2614017	• • • Channel (3 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2614017	• • Angle (6 ea.)	1	S-571	–	–	Replace
	2614017	• • Angle (4 ea.)	1	S-705	–	–	Replace
	2614017	• • Support	1	S-636	–	–	Replace
9	2614017	• • Doubler	1	S-636	–	–	Replace
	2614017	• • Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2614017	• • Spacer	1	2024-T3 Clad	0.020	–	Replace
10	2614017	• • Extender	1	2024-T3 Clad	0.063	–	Replace
	2614017	• • Shim	1	2024-T42 Clad	0.050	–	Replace
11	2614017	• • Receptacle Strip (2 ea.)	1	PR 3 1/2 [3]	–	–	Replace
	2614017	• • Angle (5 ea.)	4	S-705	–	–	Replace
	2614059	• • Angle (5 ea.)	5	S-705	–	–	Replace
	2614017	• • Clip	4	2024-T42 Clad	0.050	–	Replace
12	2614059	• • Clip	5	2024-T42 Clad	0.050	–	Replace
	2614017	• • Angle	4	2024-T42 Clad	0.050	–	Replace

Fuselage Instrument Panel Support Structure Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
13	2614059	• • Angle	5	2024-T42 Clad	0.050	–	Replace
	2614017	• • Pan	4	2024-T42 Clad	0.032	–	Replace
14	2614059	• • Pan	5	2024-T42 Clad	0.032	–	Replace
	2614090	• • Angle	4	S-571	–	–	Replace
	2614017	• • Support	4	2024-T42 Clad	0.050	–	Replace
15	2614059	• • Support	5	2024-T42 Clad	0.050	–	Replace
	2614017	• • Spacer (2 ea.)	4	2024-T42 Clad	0.190	–	Replace
	2614059	• • Spacer	5	2024-T42 Clad	0.190	–	Replace
	2614059	• • Spacer	5	2024-T42 Clad	0.160	–	Replace
	2614017	• • Spacer	4	2024-T3 Clad	0.032	–	Replace
	2614059	• • Spacer	5	2024-T42 Clad	0.071	–	Replace
	2614017	• • Trim Angle (2 ea.)	4	S-606	–	–	Replace
16	2614059	• • Trim Angle (2 ea.)	5	S-636	–	–	Replace
17	2614059	• • Stiffener, LH& RH	5	S-636	–	–	Replace
	2614017	• • Spacer	4	2024-T3 Clad	0.312	–	Replace
	2614059	• • Spacer	5	2024-T42 Clad	0.032	–	Replace
18	2614059	• • Bow Support, LH & RH	6	2024-T42 Clad	0.032	–	Replace
	2614059	• • Strap, LH & RH	7	-17-4PH Stainless	0.250	–	Replace
19	2614059	• • Strap, LH & RH	8	-17-4PH Stainless	0.250	–	Replace
	2614059	• • Shim (2 ea.)	9	2024-T42 Clad	0.063	–	Replace

Fuselage Instrument Panel Support Structure Repair Index
Figure 1 (Sheet 3 of 4)

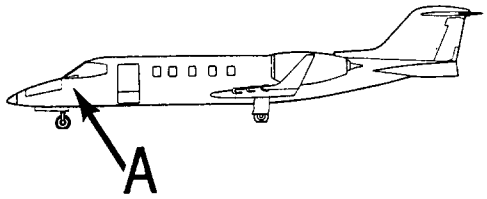
CODES	EFFECTIVITIES
1	35-001 THRU 35-508; 36-001 THRU 36-053
2	35-001 THRU 35-015; 36-001 THRU 36-008
3	35-016 THRU 35-508; 36-009 THRU 36-053
4	35-001 THRU 35-093; 36-001 THRU 36-024
5	35-094 THRU 35-508; 36-025 THRU 36-053
6	35-123 THRU 35-508; 36-033 THRU 36-053
7	35-123 THRU 35-184; 36-033 THRU 36-038
8	35-185 THRU 35-508; 36-039 THRU 36-053
9	35-500 THRU 35-508

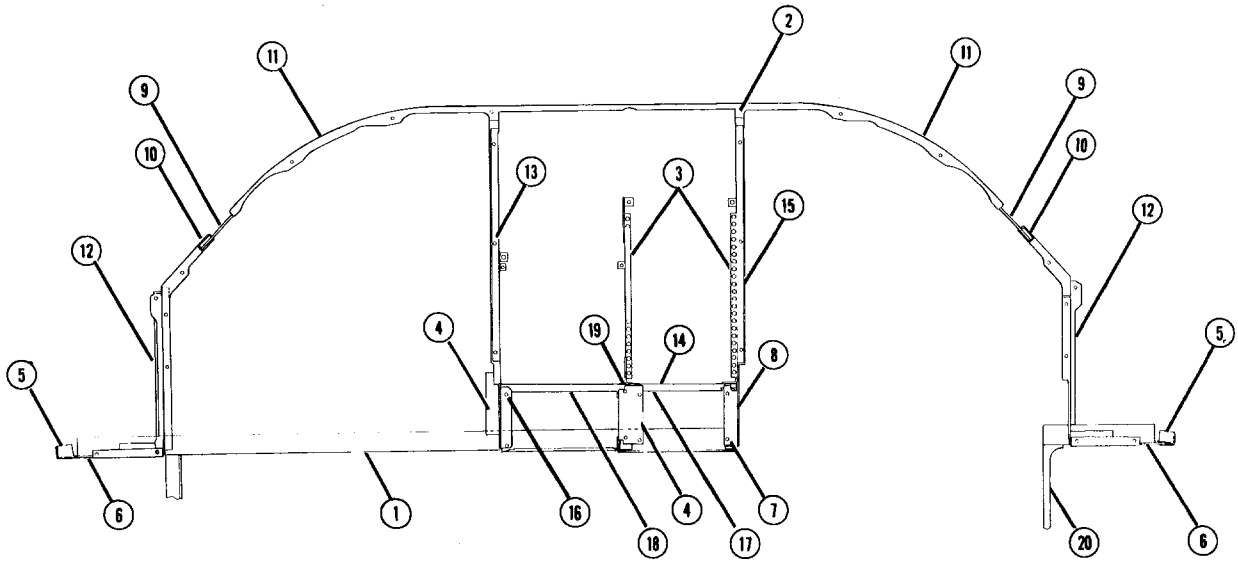
NOTES:

1. Made from MS2000P4-138 hinge.
2. Made from MS2000PH9-140 hinge.
3. Product of Dzus Fastener, Westslip, NY

Fuselage Instrument Panel Support Structure Repair Index
Figure 1 (Sheet 4 of 4)

FUSELAGE INSTRUMENT PANEL SUPPORT STRUCTURE - STRUCTURAL IDENTIFICATION





(TYPICAL)

(VIEW LOOKING FORWARD)

Detail A

16-74C

Fuselage Instrument Panel Support Structure Repair Index
Figure 2 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2614074	Structural Support Instl., Instrument Panel	1	–	–	–	–
	3114036	Structural Support Instl., Instrument Panel	2	–	–	–	–
	2614074	• Structure Assy., Instrument Panel	1	–	–	–	–
	3114036	• Structure Assy., Instrument Panel	2	–	–	–	–
1	2614017	• • Channel	3	2024-T42 Clad	0.090	–	Replace
	2614017	• • Angle	4	2024-T42 Clad	0.050	–	Replace
2	2614017	• • Angle (3 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2614017	• • Clip (3 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2614017	• • Clip	3	2024-T3 Clad	0.050	–	Replace
	2614017	• • Channel	3	2024-T42 Clad	0.063	–	Replace
3	2614017	• • Receptacle Strip (2 ea.)	4	PR 3 1/2 [1]	–	–	Replace
	2614017	• • Clip	5	2024-T3 Clad	0.050	–	Replace
	2614017	• • Spacer	6	2024-T3 Clad	0.020	–	Replace
	2614017	• • Extender	6	2024-T3 Clad	0.063	–	Replace
	2614017	• • Doubler	3	S-636	–	–	Replace
4	2614017	• • Angle (4 ea.)	3	S-571	–	–	Replace
	2614017	• • Clip (2 ea.)	3	2024-T42 Clad	0.040	–	Replace
5	2614017	• • Angle, LH & RH	3	2024-T42 Clad	0.040	–	Replace
6	2614017	• • Bracket (2 ea.)	3	2024-T42 Clad	0.032	–	Replace
7	2614017	• • Support	3	2024-T42 Clad	0.050	–	Replace
8	2614017	• • Angle (4 ea.)	3	S-705	–	–	Replace
	2614017	• • Support	6	2024-T42 Clad	0.050	–	Replace
	2614017	• • Support	2	2024-T42 Clad	0.050	–	Replace
	2614017	• • Angle	3	S-571	–	–	Replace
9	2614017	• • Bow Support, LH & RH	7	2024-T42 Clad	0.063	–	Replace
	2614017	• • Bow Support, LH & RH	8	2024-T42 Clad	0.063	–	Replace
10	2614017	• • Strap, LH & RH	3	-17-4PH Stainless	0.250	–	Replace
	2614017	• • Shim	3	2024-T42 Clad	0.050	–	Replace
	2614017	• • Channel (2 ea.)	7	2024-T42 Clad	0.063	–	Replace
11	2614017	• • Channel (2 ea.)	8	2024-T42 Clad	0.063	–	Replace
12	2614017	• • Support (2 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2614017	• • Support	4	S-636	–	–	Replace
13	2614017	• • Shim (2 ea.)	4	2024-T3 Clad	0.063	–	Replace
	2614017	• • Angle (2 ea.)	3	S-705	–	–	Replace
14	2614059	• • Tray	3	2024-T42 Clad	0.050	–	Replace
	2614059	• • Angle	6	2024-T42 Clad	0.050	–	Replace
	2614059	• • Angle	2	2024-T42 Clad	0.050	–	Replace
15	2614059	• • Angle (3 ea.)	3	S-705	–	–	Replace
16	2614059	• • Clip	3	2024-T42 Clad	0.050	–	Replace

Fuselage Instrument Panel Support Structure Repair Index
Figure 2 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
17	2614059	• • Angle	3	S-603	–	–	Replace
	2614059	• • Angle	6	S-705	–	–	Replace
	2614059	• • Angle	2	S-705	–	–	Replace
18	2614059	• • Pan	6	2024-T42 Clad	0.032	–	Replace
19	2614059	• • Stiffener (2 ea.)	6	S-636	–	–	Replace
	2614059	• • Pan Assy.	2	–	–	–	Replace
	2614059	• • • Pan	2	2024-T42 Clad	0.032	–	Replace
	2614059	• • • Stiffener (2 ea.)	2	S-636	–	–	Replace
	2614059	• • Support	3	2024-T42 Clad	0.050	–	Replace
	2614059	• • Spacer	3	2024-T42 Clad	0.190	–	Replace
	2614059	• • Spacer	4	2024-T42 Clad	0.071	–	Replace
	2614059	• • Spacer	3	2024-T42 Clad	0.032	–	Replace
	2614059	• • Spacer	3	2024-T42 Clad	0.160	–	Replace
20	2614073	• • Support Assy.	3	–	–	–	Replace
	2614073	• • • Angle Assy.	3	–	–	–	Replace
	2614073	• • • • Angle (2 ea.)	3	S-636	–	–	Replace
	2614073	• • Angle Assy.	3	–	–	–	Replace
	2614073	• • • Angle	3	2024-T42 Clad	0.050	–	Replace
	2614059	• • Bracket Assy. (2 ea.)	9	–	–	–	Replace
	2614059	• • • Bracket	9	2024-T42 Clad	0.050	–	Replace
	2614074	• • Bracket Assy. (2 ea.)	10	–	–	–	Replace
	2614074	• • • Angle	10	S-637	–	–	Replace
	2614059	• • Bracket Assy. (2 ea.)	11	–	–	–	Replace
	2614059	• • • Bracket	11	2024-T42 Clad	0.050	–	Replace
	2614059	• • Plate Assy.	11	–	–	–	Replace
	2614059	• • • Plate	11	2024-T3 Clad	0.063	–	Replace
	2614059	• • Plate Assy.	11	–	–	–	Replace
	2614059	• • • Plate	11	2024-T3 Clad	0.050	–	Replace
	2614059	• • Shim	11	2024-T3 Clad	0.020	–	Replace

Fuselage Instrument Panel Support Structure Repair Index
Figure 2 (Sheet 3 of 4)

CODES	EFFECTIVITIES
1	31-001 THRU 31-034; 35-509 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
2	31-035 AND SUBSEQUENT
3	31-001 AND SUBSEQUENT; 35-509 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
4	31-001 THRU 31-032, 31-035 AND SUBSEQUENT; 35-509 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
5	31-001 THRU 31-032, 31-035 THRU 31-066; 35-509 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
6	31-001 THRU 31-032; 35-509 AND SUBSEQUENT; 36-054 AND SUBSEQUENT
7	35-509 THRU 35-616; 36-054 AND 36-055
8	31-035 AND SUBSEQUENT; 35-617 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
9	31-035 THRU 31-066
10	31-033 AND 31-034
11	31-067 AND SUBSEQUENT

NOTES:

[1] Product of Dzus Fastener, Westslip, NY

Fuselage Instrument Panel Support Structure Repair Index
Figure 2 (Sheet 4 of 4)

FUSELAGE INSTRUMENT PANEL SUPPORT STRUCTURE - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage instrument panel support structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

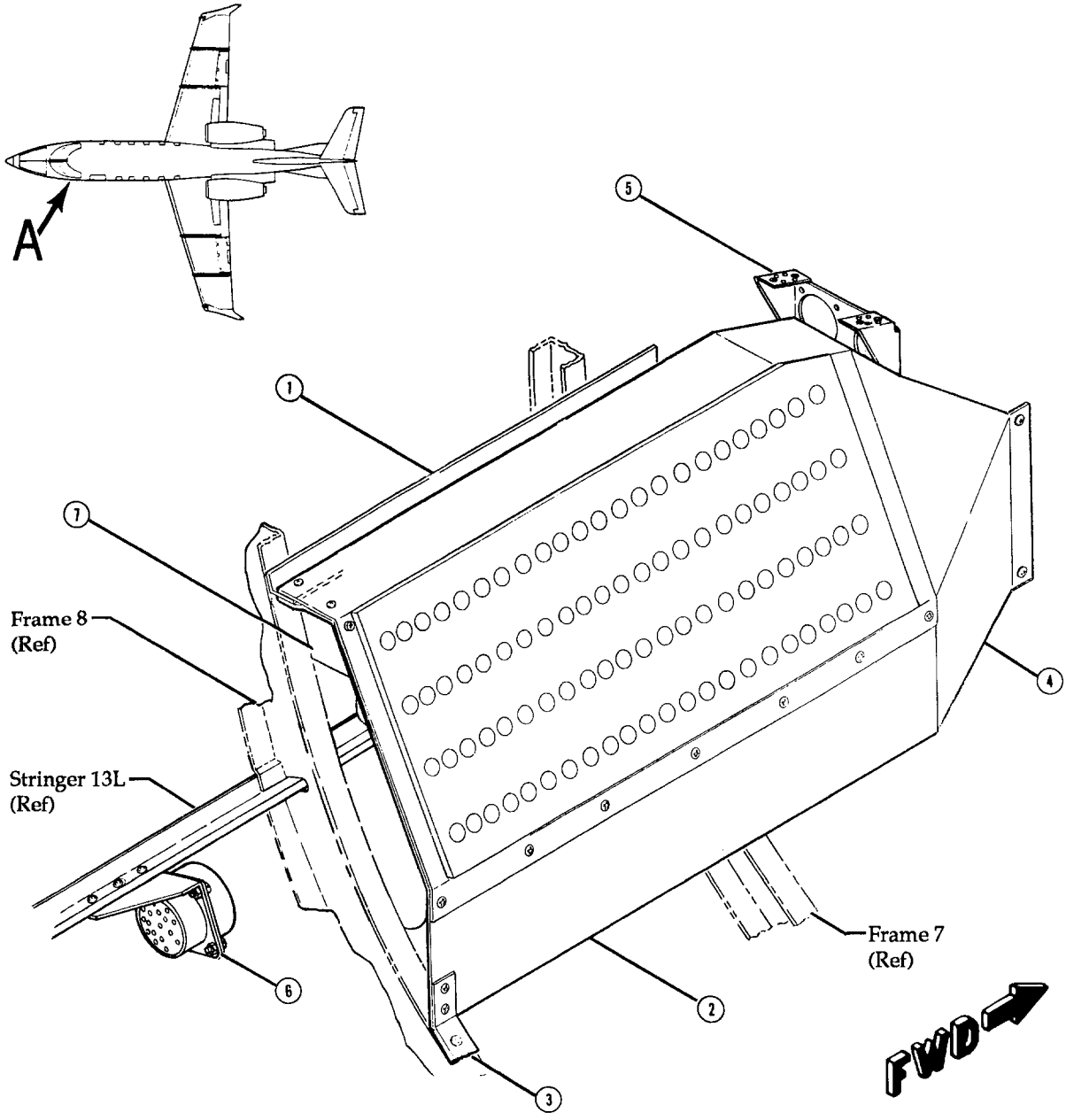
FUSELAGE INSTRUMENT PANEL SUPPORT STRUCTURE - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE CIRCUIT BREAKER PANEL STRUCTURE - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage circuit breaker panel support structure is located in the cockpit, at frame 7 and frame 8, on the LH and RH sides of the aircraft. The support structure provides structural support and mounting provisions for the circuit breaker panels, electrical components and wiring connections.

FUSELAGE CIRCUIT BREAKER PANEL STRUCTURE - STRUCTURAL IDENTIFICATION



(LH SHOWN, RH OPPOSITE)

(TYPICAL)

Detail A

9-482B

Fuselage Circuit Breaker Panel Structure Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3118213	Support Instl., Circuit Breaker Panel	1	–	–	–	–
	2614071	• Bracket Assy.	1	–	–	–	Replace
	2618099	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2614071	• Plate (3 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2314035	• Placard (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2614025	• Insulator (2 ea.)	1	Phenolic Sht 1	–	–	Replace
	2614025	• Support Angle Assy., LH & RH	2	–	–	–	Replace
	2614025	• • Support Angle	2	2024-T42 Clad	0.032	–	Replace
1	2614025	• Support Angle Assy., LH & RH	3	–	–	–	Replace
	2614025	• • Support Angle	3	2024-T42 Clad	0.032	–	Replace
	2614026	• Panel Assy., Lower LH & RH	2	–	–	–	Replace
	2614026	• • Lower Panel	2	2024-T42 Clad	0.032	–	Replace
2	2614026	• Panel Assy., Lower LH & RH	3	–	–	–	Replace
	2614026	• • Lower Panel	3	2024-T42 Clad	0.032	–	Replace
	2614026	• Support Angle	2	2024-T42 Clad	0.050	–	Replace
3	2614026	• Support Angle	3	2024-T42 Clad	0.050	–	Replace
	2614025	• Kick Panel Assy., LH & RH	2	–	–	–	Replace
	2614025	• • Kick Panel, Upper	2	2024-T42 Clad	0.032	–	Replace
4	2614025	• Kick Panel Assy., LH & RH	3	–	–	–	Replace
	2614025	• • Kick Panel, Upper	3	2024-T42 Clad	0.032	–	Replace
	3118214	• Bracket Assy. (2 ea.)	4	–	–	–	Replace
	3118214	• • Kick Panel, Upper	4	2024-T3 Clad	0.040	–	Replace
5	3118214	• Bracket Assy., LH & RH	5	–	–	–	Replace
	3118214	• • Kick Panel, Upper	5	2024-T3 Clad	0.040	–	Replace
	3118214	• Bracket Assy., LH & RH	6	–	–	–	Replace
	3118214	• • Bracket	6	2024-T3 Clad	0.040	–	Replace
6	3118214	• Bracket Assy., LH & RH	7	–	–	–	Replace
	3118214	• • Bracket	7	2024-T3 Clad	0.040	–	Replace
7	3118215	• Panel Support Assy., LH & RH	1	–	–	–	Replace
	3118215	• • Panel Support	1	2024-T42 Clad	0.040	–	Replace
	2614025	• • Support Angle	1	2024-T42 Clad	0.040	–	Replace
	3118215	• • Spacer	3	7075T651	0.750	–	Replace
	3118215	• • Filler	8	2024-T3 Clad	0.032	–	Replace

Fuselage Circuit Breaker Panel Structure Repair Index
Figure 1 (Sheet 2 of 3)

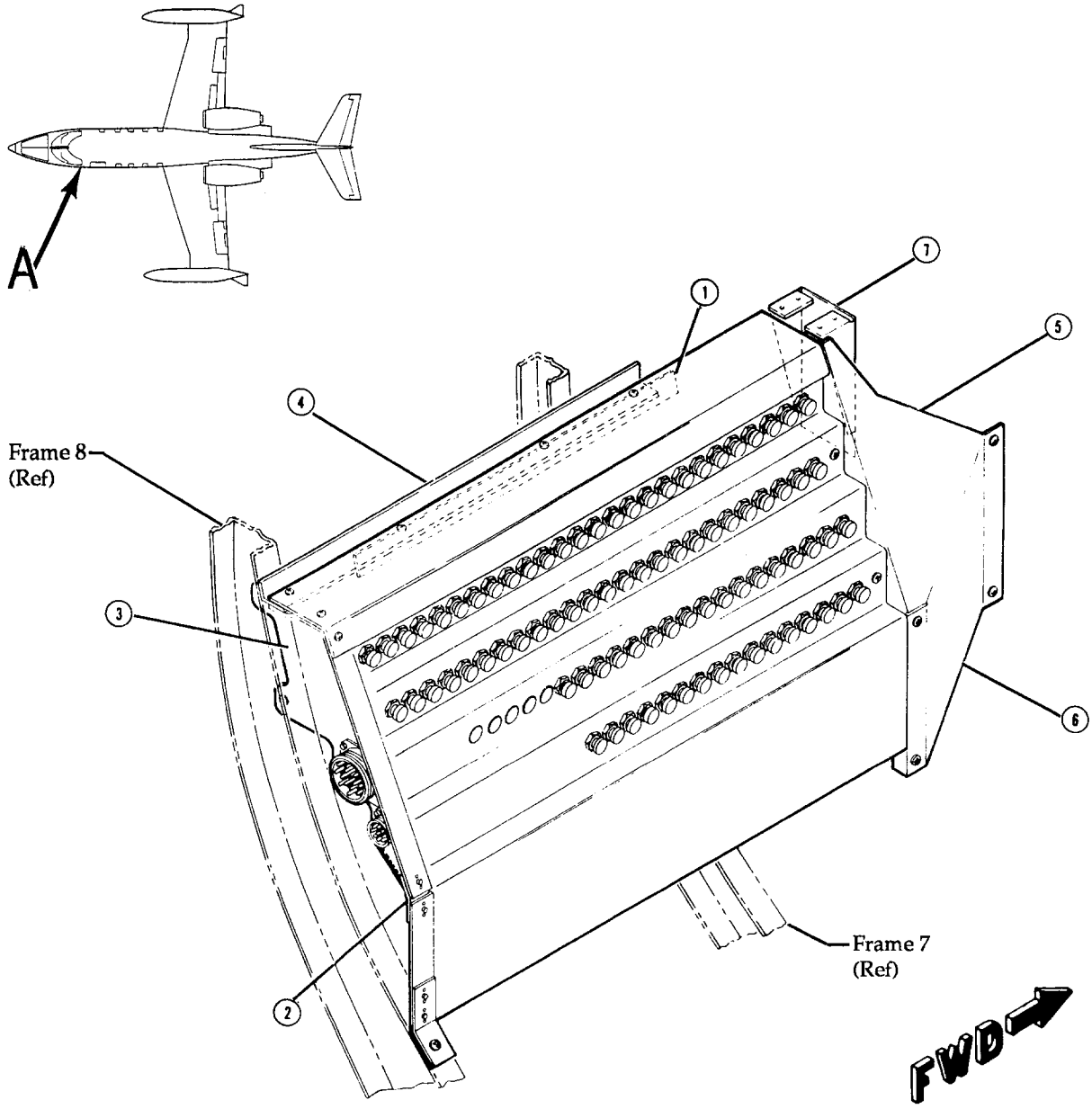
CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT
2	31-001 THRU 31-034
3	31-035 AND SUBSEQUENT
4	31-001 THRU 31-046
5	31-047 AND SUBSEQUENT
6	31-001 THRU 31-006
7	31-007 AND SUBSEQUENT
8	31-057 AND SUBSEQUENT

NOTES:

1 Type FBG per MIL-P-15035

Fuselage Circuit Breaker Panel Structure Repair Index
Figure 1 (Sheet 3 of 3)

FUSELAGE CIRCUIT BREAKER PANEL STRUCTURE - STRUCTURAL IDENTIFICATION



(LH SHOWN, RH OPPOSITE)

(TYPICAL)

Detail A

9-60C

Fuselage Circuit Breaker Panel Structure Repair Index
Figure 2 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2614025	Support Instl., Circuit Breaker Panel	1	–	–	–	–
	2614072	Support Instl., Circuit Breaker Panel	2	–	–	–	–
1	2614025	• Insulator (2 ea.)	3	Phenolic Sht 1	–	–	Replace
	2614025	• Panel Support Assy., LH & RH	4	–	–	–	Replace
2	2614025	• • Support Angle (2 LH & 1 RH)	4	2024-T42 Clad	0.040	–	Replace
	2614025	• Panel Support Assy., LH & RH	5	–	–	–	Replace
	2614025	• • Support Angle (2 LH & 1 RH)	5	2024-T42 Clad	0.040	–	Replace
	2614025	• Panel Support Assy., LH	6	–	–	–	Replace
3	2614025	• • Support Angle (2 ea.)	6	2024-T42 Clad	0.040	–	Replace
	2614025	• Panel Support Assy., RH	7	–	–	–	Replace
	2614025	• • Support Angle, RH	7	2024-T42 Clad	0.040	–	Replace
	2614071	• Panel Support Assy., RH	2	–	–	–	Replace
4	2614071	• • Panel Support	2	2024-T42 Clad	0.040	–	Replace
	2614025	• • Support Angle	2	2024-T42 Clad	0.040	–	Replace
	2614025	• Support Angle Assy., LH & RH	3	–	–	–	Replace
	2614025	• • Support Angle	3	2024-T42 Clad	0.032	–	Replace
	2614025	• Splice Plate	8	2024-T42 Clad	0.040	–	Replace
	2614025	• Kick Panel Assy., LH & RH	9	–	–	–	Replace
	2614025	• • Kick Panel, Upper	9	2024-T42 Clad	0.032	–	Replace
	2614025	• • Kick Panel, Lower	9	2024-T42 Clad	0.032	–	Replace
5	2614025	• Kick Panel Assy., LH & RH	6	–	–	–	Replace
	2614025	• • Kick Panel, Upper	6	2024-T42 Clad	0.032	–	Replace
6	2614025	• • Kick Panel, Lower	6	2024-T42 Clad	0.032	–	Replace
	2614025	• Bracket Assy. (2 ea.)	10	–	–	–	Replace
	2614025	• • Bracket	10	2024-T42 Clad	0.040	–	Replace
7	2614025	• Bracket Assy., LH & RH	11	–	–	–	Replace
	2614025	• • Bracket	11	2024-T42 Clad	0.040	–	Replace
	2614025	• Bracket Assy. (2 ea.)	12	–	–	–	Replace
	2614025	• • Bracket	12	2024-T42 Clad	0.040	–	Replace
	2614071	• Bracket Assy. (2 ea.)	2	–	–	–	Replace
	2614071	• • Bracket	2	2024-T42 Clad	0.040	–	Replace
	2614071	• Bracket Assy.	2	–	–	–	Replace
	2618099	• • Bracket	2	2024-T3 Clad	0.040	–	Replace
	2614071	• Plate	13	2024-T42 Clad	0.040	–	Replace

Fuselage Circuit Breaker Panel Structure Repair Index
Figure 2 (Sheet 2 of 3)

CODES	EFFECTIVITIES
1	35-001 THRU 35-508, 35-589 THRU 35-623, 35-626, 35-627, 35-630 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-509 THRU 35-588, 35-624, 35-625, 35-628 AND 35-629
3	35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	35-001 THRU 35-201, 35-205; 36-001 THRU 36-041
5	35-202 THRU 35-204, 35-206 THRU 35-462, 35-470; 36-042 THRU 36-050
6	35-463 THRU 35-469, 35-471 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
7	35-463 THRU 35-469, 35-471 THRU 35-508, 35-589 THRU 35-623, 35-626, 35-627, 35-630 AND SUBSEQUENT
8	35-001 THRU 35-015; 36-001 THRU 36-008
9	35-001 THRU 35-462, 35-470; 36-001 THRU 35-050
10	35-001 THRU 35-123; 36-001 THRU 36-032
11	35-124 THRU 35-508, 35-589 THRU 35-623, 35-626, 35-627, 35-630 THRU 35-663; 36-032 THRU 35-058
12	35-664 AND SUBSEQUENT; 36-059 AND SUBSEQUENT
13	35-509 THRU 35-588, 35-624, 35-625, 35-628, 35-629 AND SUBSEQUENT

NOTES:

1 Type FBG per MIL-P-15035

Fuselage Circuit Breaker Panel Structure Repair Index
Figure 2 (Sheet 3 of 3)

FUSELAGE CIRCUIT BREAKER PANEL STRUCTURE - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage circuit breaker panel structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

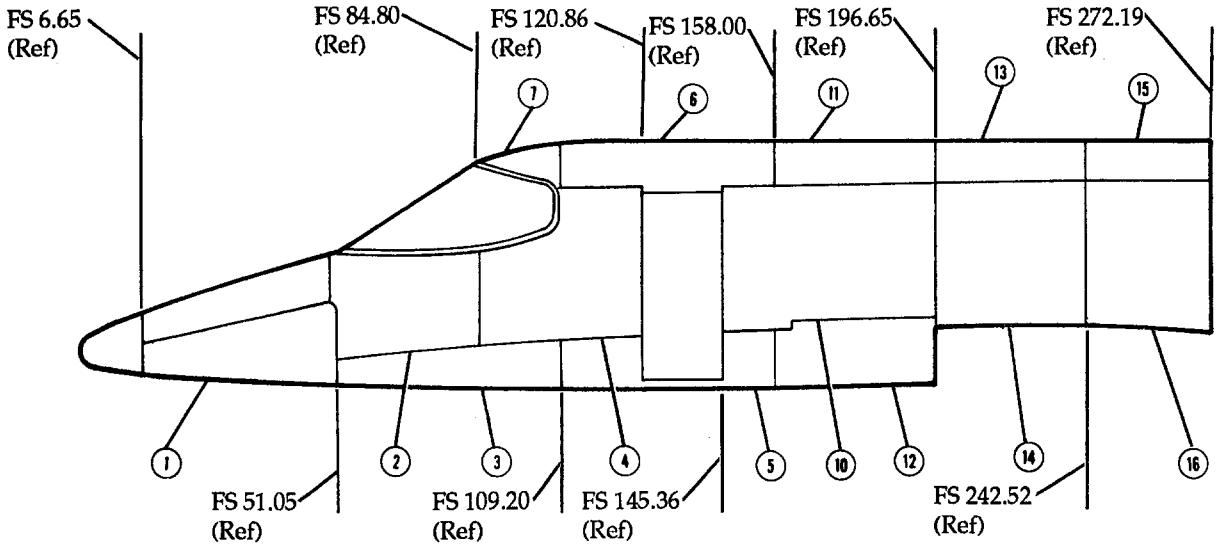
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

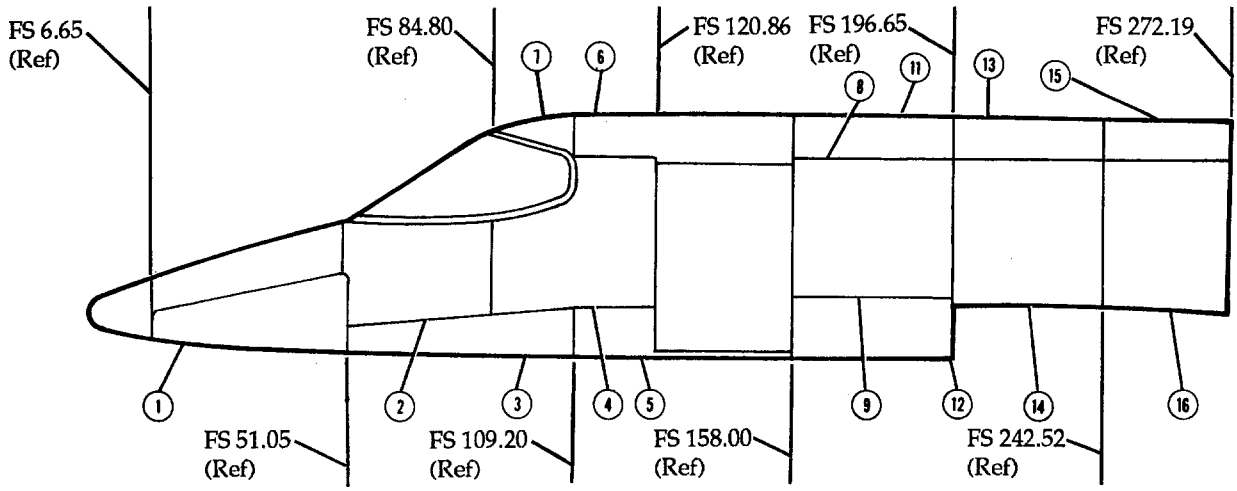
FUSELAGE CIRCUIT BREAKER PANEL STRUCTURE - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE SKINS - STRUCTURAL IDENTIFICATION



(24 Series Aircraft W/24-Inch Passenger/Crew Door)



(23 and 24 Series Aircraft W/36-Inch Passenger/Crew Door)

(FUSELAGE SHOWN WITHOUT WINDOW CUTOUTS)

2-209A

Fuselage Skins Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311000	Fuselage Structure Assy	1	–	–	–	–
	2411000	Fuselage Structure Assy	2	–	–	–	–
	2411003	Fuselage Structure Assy	3	–	–	–	–
1	2311500	• Skin, LH & RH Nose (FS 6.65 to 51.05)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Nose (FS 6.65 to 51.05)	4	2024-T42 Clad	0.040	–	51-70-02
2	2311500	• Skin, LH & RH Side (FS 51.05 to 84.80)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Side (FS 51.05 to 84.80)	4	2024-T42 Clad	0.040	–	51-70-02
3	2311500	• Skin, Fwd Bottom (FS51.05 to 109.20)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Fwd Bottom (FS51.05 to 109.20)	4	2024-T42 Clad	0.040	–	51-70-02
4	2311500	• Skin, LH & RH Upper (FS 84.80 to 120.86)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Upper (FS 84.80 to 120.86)	4	2024-T42 Clad	0.040	–	51-70-02
5	2311500	• Skin, Bottom (FS 109.20 to 158.00)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Bottom (FS 109.20 to 158.00)	2	2024-T42 Clad	0.040	–	51-70-02
	2411006	• Skin, Bottom (FS 109.20 to 158.00)	3	2024-T42 Clad	0.040	–	51-70-02
6	2311500	• Skin, Top (FS 109.20 to 158.00)	1	2024-T42 Clad	0.040	–	51-70-02
	2511001	• Skin, Top (FS 109.20 to 158.00)	2	2024-T42 Clad	0.040	–	51-70-02
	2411006	• Skin, Top (FS 109.20 to 158.00)	3	2024-T42 Clad	0.040	–	51-70-02
7	2311500	• Skin, Top (FS 84.80 to 109.20)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Top (FS 84.80 to 109.20)	4	2024-T42 Clad	0.040	–	51-70-02
8	2311500	• Skin, LH & RH Side (FS 158.00 to 196.65)	1	2024-T42 Clad	0.040	–	51-70-02
9	2411001	• Skin, LH Side (FS 158.00 to 196.65)	2	2024-T42 Clad	0.040	–	51-70-02
10	2411006	• Skin, LH Side (FS 158.00 to 196.65)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, RH Side (FS 158.00 to 196.65)	4	2024-T42 Clad	0.040	–	51-70-02
11	2311500	• Skin,Top (FS 158.00 to 196.65)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin,Top (FS 145.36 to 196.65)	4	2024-T42 Clad	0.040	–	51-70-02
12	2311500	• Skin, Bottom (FS 158.00 to 196.65)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Bottom (FS 158.00 to 196.65)	2	2024-T42 Clad	0.040	–	51-70-02
	2411006	• Skin, Bottom (FS 158.00 to 196.65)	3	2024-T42 Clad	0.040	–	51-70-02

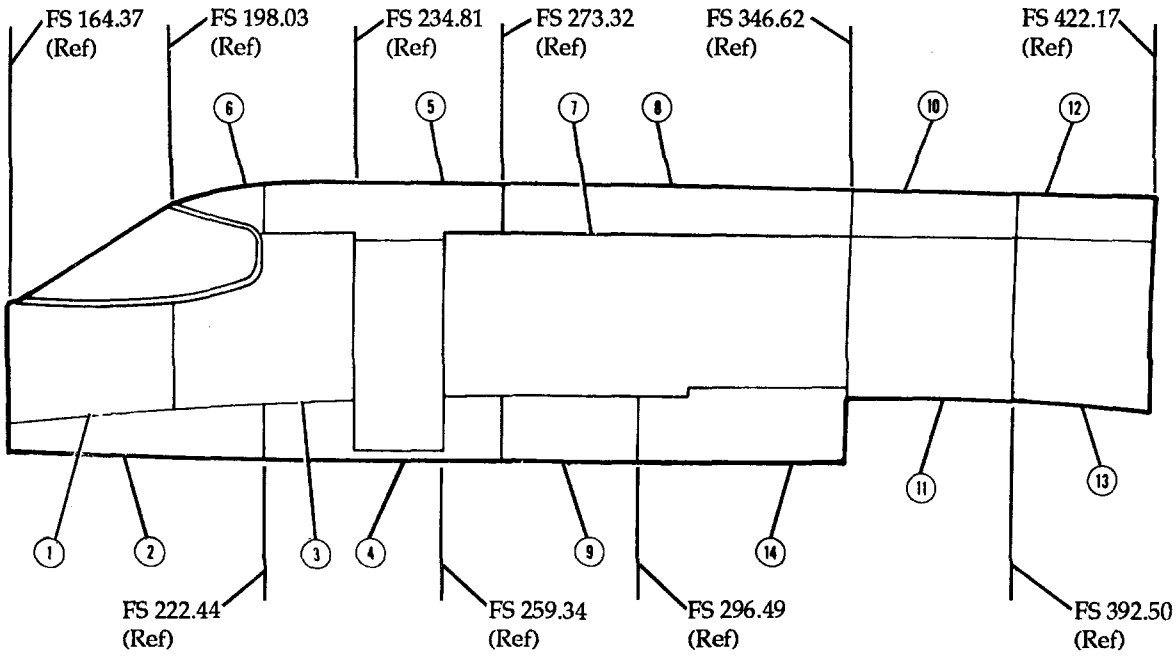
Fuselage Skins Repair Index
Figure 1 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
13	2311500	• Skin, Top (FS 196.65 to 242.52)	1	2024-T42 Clad	0.040	–	51-70-02
	2511001	• Skin, Top (FS 196.65 to 242.52)	4	2024-T42 Clad	0.040	–	51-70-02
14	2311500	• Skin, LH & RH Side (FS 196.65 to 242.52)	1	2024-T42 Clad	0.040	–	51-70-02
	2511001	• Skin, LH & RH Side (FS 196.65 to 242.52)	4	2024-T42 Clad	0.040	–	51-70-02
15	2311500	• Skin, Top (FS 242.52 to 272.19)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Top (FS 242.52 to 272.19)	4	2024-T42 Clad	0.040	–	51-70-02
16	2311500	• Skin, LH & RH Side (FS 242.52 to 272.19)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Side (FS 242.52 to 272.19)	4	2024-T42 Clad	0.040	–	51-70-02

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218
2	24-218, 24-230 THRU 24-357 WITH 36-INCH PASSENGER/CREW DOOR
3	24-272, 24-295 THRU 24-357 WITH 24-INCH PASSENGER/CREW DOOR
4	24-218, 24-230 THRU 24-357

Fuselage Skins Repair Index
Figure 1 (Sheet 3 of 3)

FUSELAGE SKINS - STRUCTURAL IDENTIFICATION



(FUSELAGE SHOWN WITHOUT WINDOW CUTOUTS)

2-210A

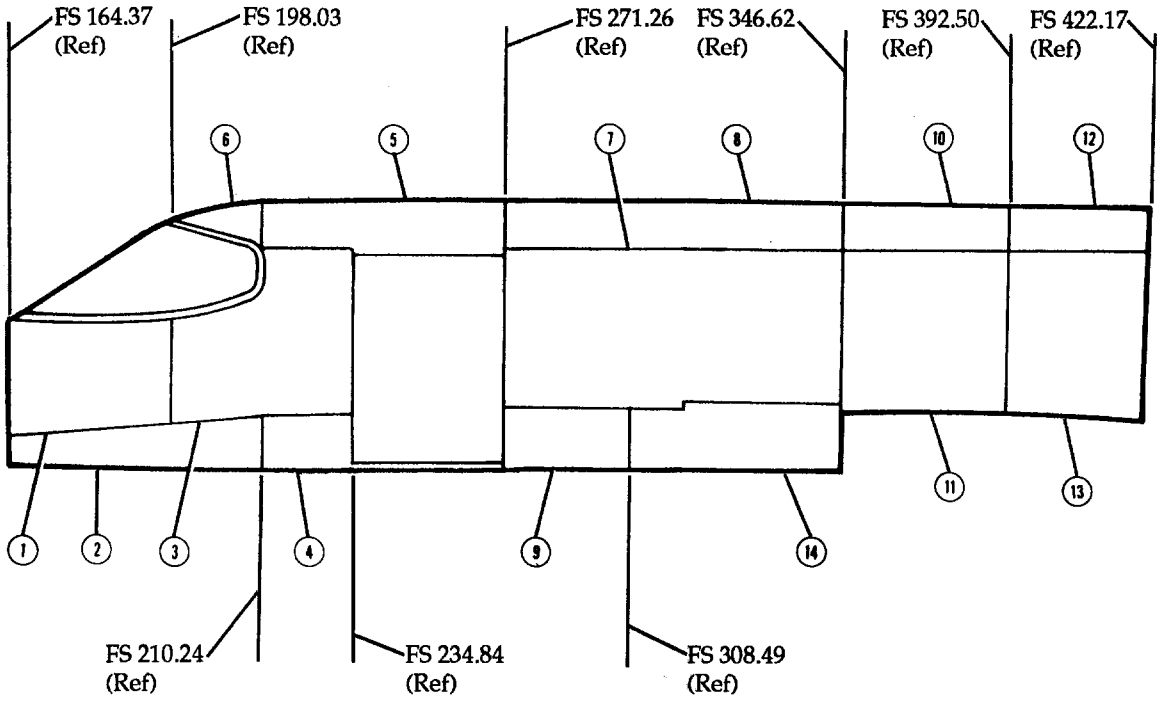
Fuselage Skins Repair Index
Figure 2 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511000	Fuselage Structure Assy	1	–	–	–	–
	2511002	Fuselage Structure Assy	2	–	–	–	–
1	2411001	• Skin, LH & RH Side (FS 164.37 to 198.03)	3	2024-T42 Clad	0.040	–	51-70-02
2	2411001	• Skin, Fwd Bottom (FS 164.37 to 222.44)	3	2024-T42 Clad	0.040	–	51-70-02
3	2411001	• Skin, LH & RH Upper (FS 198.03 to 234.84)	3	2024-T42 Clad	0.040	–	51-70-02
4	2511006	• Skin, Bottom (FS 222.44 to 273.32)	3	2024-T42 Clad	0.040	–	51-70-02
5	2511006	• Skin, Top (FS 222.44 to 273.32)	3	2024-T42 Clad	0.040	–	51-70-02
6	2411001	• Skin, Top (FS 198.03 to 222.44)	3	2024-T42 Clad	0.040	–	51-70-02
7	2511006	• Skin, LH & RH Side (FS 259.34 to 346.62)	3	2024-T42 Clad	0.040	–	51-70-02
8	2511006	• Skin,Top (FS 273.32 to 346.62)	3	2024-T42 Clad	0.040	–	51-70-02
9	2511006	• Skin, Bottom (FS 273.32 to 296.49)	3	2024-T42 Clad	0.040	–	51-70-02
10	2511001	• Skin, Top (FS 346.62 to 392.50)	3	2024-T42 Clad	0.040	–	51-70-02
11	2511001	• Skin, LH & RH Side (FS 346.62 to 392.50)	3	2024-T42 Clad	0.040	–	51-70-02
12	2411001	• Skin, Top (FS 392.50 to 422.17)	3	2024-T42 Clad	0.040	–	51-70-02
13	2411001	• Skin, LH & RH Side (FS 392.50 to 422.17)	3	2024-T42 Clad	0.040	–	51-70-02
14	2511006	• Skin, Bottom (FS 296.49 to 346.62)	3	2024-T42 Clad	0.040	–	51-70-02

CODES	EFFECTIVITIES
1	MODELS 25B & 25D SERIALS 25-061, 25-071 THRU 25-373 WITH 24-INCH PASSENGER/CREW DOOR
2	MODELS 25C & 25F SERIALS 25-061, 25-071 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; WITH 24-INCH PASSENGER/CREW DOOR
3	25-061, 25-071 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; WITH 24-INCH PASSENGER/CREW DOOR

Fuselage Skins Repair Index
Figure 2 (Sheet 2 of 2)

FUSELAGE SKINS - STRUCTURAL IDENTIFICATION



(FUSELAGE SHOWN WITHOUT WINDOW CUTOUTS)

2-210A

Fuselage Skins Repair Index
Figure 3 (Sheet 1 of 3)

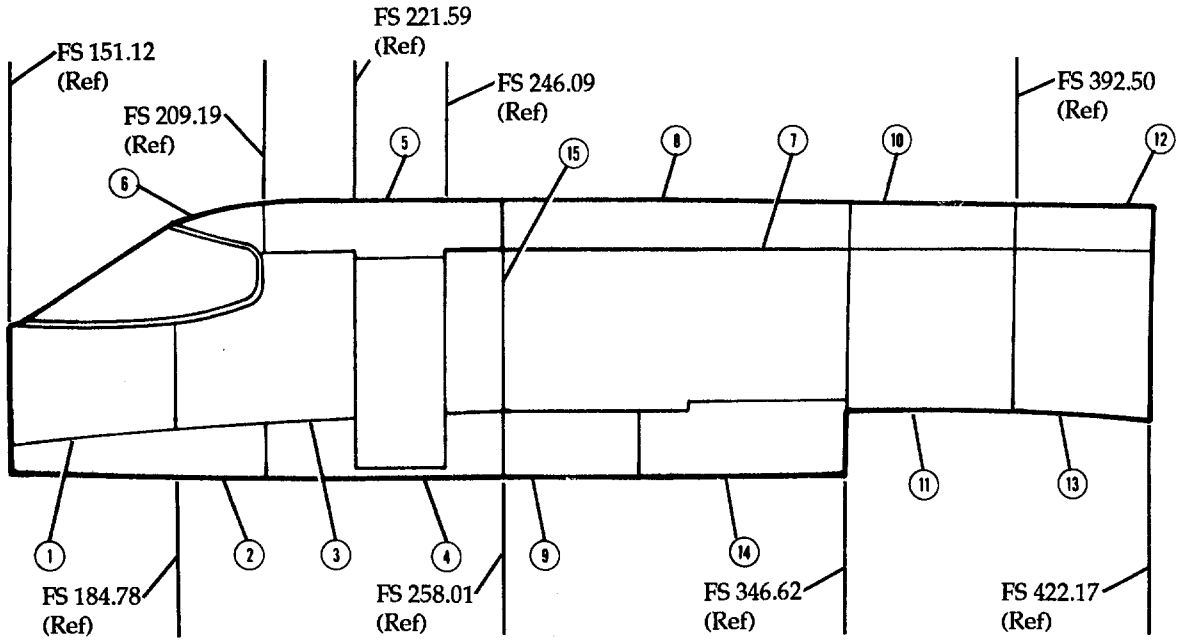
ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511003	Fuselage Structure Assy	1	–	–	–	–
	2511004	Fuselage Structure Assy	2	–	–	–	–
1	2311500	• Skin, LH & RH Side (FS 164.37 to 198.03)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Side (FS 164.37 to 198.03)	4	2024-T42 Clad	0.040	–	51-70-02
2	2311500	• Skin, Fwd Bottom (FS 164.37 to 210.24)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Fwd Bottom (FS 164.37 to 210.24)	4	2024-T42 Clad	0.040	–	51-70-02
3	2311500	• Skin, LH & RH Upper (FS 198.03 to 234.84)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Upper (FS 198.03 to 234.84)	4	2024-T42 Clad	0.040	–	51-70-02
4	2311500	• Skin, Bottom (FS 210.24 to 271.26)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Bottom (FS 210.24 to 271.26)	4	2024-T42 Clad	0.040	–	51-70-02
5	2511001	• Skin, Top (FS 210.24 to 271.26)	5	2024-T42 Clad	0.040	–	51-70-02
6	2311500	• Skin, Top (FS 198.03 to 210.24)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Top (FS 198.03 to 210.24)	4	2024-T42 Clad	0.040	–	51-70-02
7	2511001	• Skin, LH & RH Side (FS 271.26 to 346.62)	5	2024-T42 Clad	0.040	–	51-70-02
8	2511001	• Skin,Top (FS 271.26 to 346.62)	5	2024-T42 Clad	0.040	–	51-70-02
9	2511001	• Skin, Bottom (FS 271.26 to 308.49)	5	2024-T42 Clad	0.040	–	51-70-02
10	2511001	• Skin, Top (FS 346.50 to 392.50)	5	2024-T42 Clad	0.040	–	51-70-02
11	2511001	• Skin, LH & RH Side (FS 346.62 to 392.50)	5	2024-T42 Clad	0.040	–	51-70-02
12	2311500	• Skin, Top (FS 392.50 to 422.17)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Top (FS 392.50 to 422.17)	4	2024-T42 Clad	0.040	–	51-70-02
13	2311500	• Skin, LH & RH Side (FS 392.50 to 422.17)	3	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, LH & RH Side (FS 392.50 to 422.17)	4	2024-T42 Clad	0.040	–	51-70-02
14	2511001	• Skin, Bottom (FS 308.49 to 346.62)	3	2024-T42 Clad	0.040	–	51-70-02
	2611001	• Skin, Bottom (FS 308.49 to 346.62)	4	2024-T42 Clad	0.040	–	51-70-02

Fuselage Skins Repair Index
Figure 3 (Sheet 2 of 3)

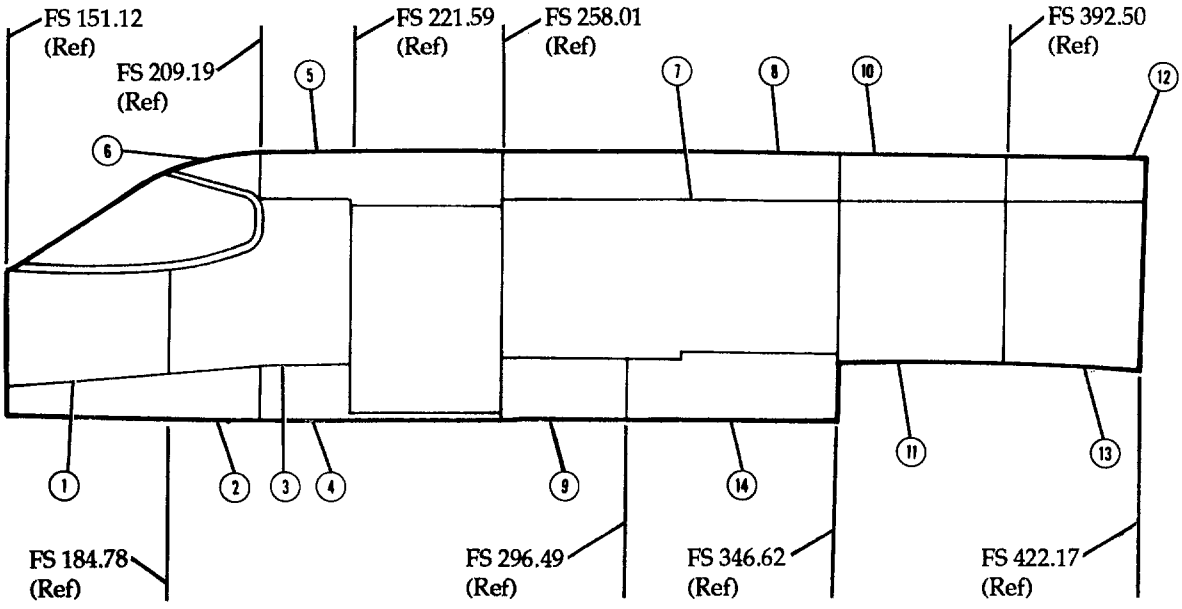
CODES	EFFECTIVITIES
1	24-002 THRU 25-065, EXCEPT 25-061; AND MODELS 25B & 25D SERIALS 25-061, 25-071 THRU 25-373; WITH 36-INCH PASSENGER/CREW DOOR
2	MODELS 25C & 25F SERIALS 25-061, 25-071 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; WITH 36-INCH PASSENGER/CREW DOOR
3	25-002 THRU 25-064, EXCEPT 25-061
4	25-061, 25-071 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004
5	25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004

Fuselage Skins Repair Index
Figure 3 (Sheet 3 of 3)

FUSELAGE SKINS - STRUCTURAL IDENTIFICATION



(30 Series Aircraft W/24-Inch Passenger/Crew Door)



(30 Series Aircraft W/36-Inch Passenger/Crew Door)

(FUSELAGE SHOWN WITHOUT WINDOW CUTOUTS)

2-210A

Fuselage Skins Repair Index
Figure 4 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611000	Fuselage Structure Assy	1	–	–	–	–
	2611003	Fuselage Structure Assy	2	–	–	–	–
1	2411001	• Skin, LH & RH Side (FS 151.12 to 184.78)	3	2024-T42 Clad	0.040	–	51-70-02
2	2411001	• Skin, Fwd Bottom (FS 151.12 to 209.19)	3	2024-T42 Clad	0.040	–	51-70-02
3	2411001	• Skin, LH & RH Upper (FS 184.78 to 221.59)	3	2024-T42 Clad	0.040	–	51-70-02
4	2511006	• Skin, Bottom (FS 209.19 to 258.01)	1	2024-T42 Clad	0.040	–	51-70-02
	2411001	• Skin, Bottom (FS 209.19 to 258.01)	2	2024-T42 Clad	0.040	–	51-70-02
5	2511001	• Skin, Top (FS 209.19 to 246.09)	1	2024-T42 Clad	0.040	–	51-70-02
	2511001	• Skin, Top (FS 209.19 to 258.01)	2	2024-T42 Clad	0.040	–	51-70-02
6	2411001	• Skin, Top (FS 184.78 to 209.19)	3	2024-T42 Clad	0.040	–	51-70-02
7	2611006	• Skin, LH & RH Side (FS 258.01 to 346.62)	1	2024-T42 Clad	0.040	–	51-70-02
	2611001	• Skin, LH & RH Side (FS 258.01 to 346.62)	2	2024-T42 Clad	0.040	–	51-70-02
8	2611001	• Skin,Top (FS 258.01 to 346.62)	3	2024-T42 Clad	0.040	–	51-70-02
9	2611006	• Skin, Bottom (FS 258.01 to 296.49)	1	2024-T42 Clad	0.040	–	51-70-02
	2611001	• Skin, Bottom (FS 258.01 to 296.49)	2	2024-T42 Clad	0.040	–	51-70-02
10	2511001	• Skin, Top (FS 346.50 to 392.50)	3	2024-T42 Clad	0.040	–	51-70-02
11	2511001	• Skin, LH & RH Side (FS 346.62 to 392.50)	3	2024-T42 Clad	0.040	–	51-70-02
12	2411001	• Skin, Top (FS 392.50 to 422.17)	3	2024-T42 Clad	0.040	–	51-70-02
13	2411001	• Skin, LH & RH Side (FS 392.50 to 422.17)	3	2024-T42 Clad	0.040	–	51-70-02
14	2611001	• Skin, Bottom (FS 296.49 to 346.62)	3	2024-T42 Clad	0.040	–	51-70-02
15	2611001	• Skin, LH Side (FS 246.09 to 258.01)	1	2024-T42 Clad	0.040	–	51-70-02
	2611001	• Skin, RH Side (FS 221.59 to 258.01)	3	2024-T42 Clad	0.040	–	51-70-02

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT; WITH 24-INCH PASSENGER/CREW DOOR
2	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT; WITH 36-INCH PASSENGER/CREW DOOR
3	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

Fuselage Skins Repair Index
Figure 4 (Sheet 2 of 2)

TEMPORARY REVISION NO. 53-1

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual.

FILING INSTRUCTIONS: Insert adjacent to 53-28-00, page 101, dated May 15/92 and retain until further notice.

REASON: To provide allowable damage limits for contour deviations on *Aircraft certified for Reduced Vertical Separation Minimum Operations.*

INSTRUCTIONS: Revise paragraph 1. Allowable Damage Limits and add Figure 102 as follows:

1. Allowable Damage Limits

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
(1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
(2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
(1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
(2) Cracks in components other than fittings and forgings are considered allowable if properly repaired and refinished in accordance with Chapter 51.

C. Deformation
(1) Deformation of the forward fuselage skins is not allowed.

D. Corrosion (See Figure 101.)
(1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
(2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
(1) Dents are permissible if smooth and without abrupt changes in contour, do not exceed 0.100 inch [2.54 mm] in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch [12.7 mm] to any rivet or structural area.

(2) Dents are not allowed if sharp, a fracture of the skin has occurred, are greater than 0.100 inch [2.54 mm] in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch [12.7 mm] to a rivet or structural area. Such dents shall be repaired or the component replaced.

(3) *On Aircraft certified for Reduced Vertical Separation Minimum Operations*, the maximum allowed skin contour deviation in the area beneath the primary pitot-static probes (see Figure 102) is ±0.045 inch [1.143 mm].

NOTE: For limits and procedures to determine skin contour and deviation refer to Chapter 53 of the basic Learjet Model 31/31A Maintenance Manual.

F. Scratches (See Figure 101.)

(1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)

(2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)

(1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)

(2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

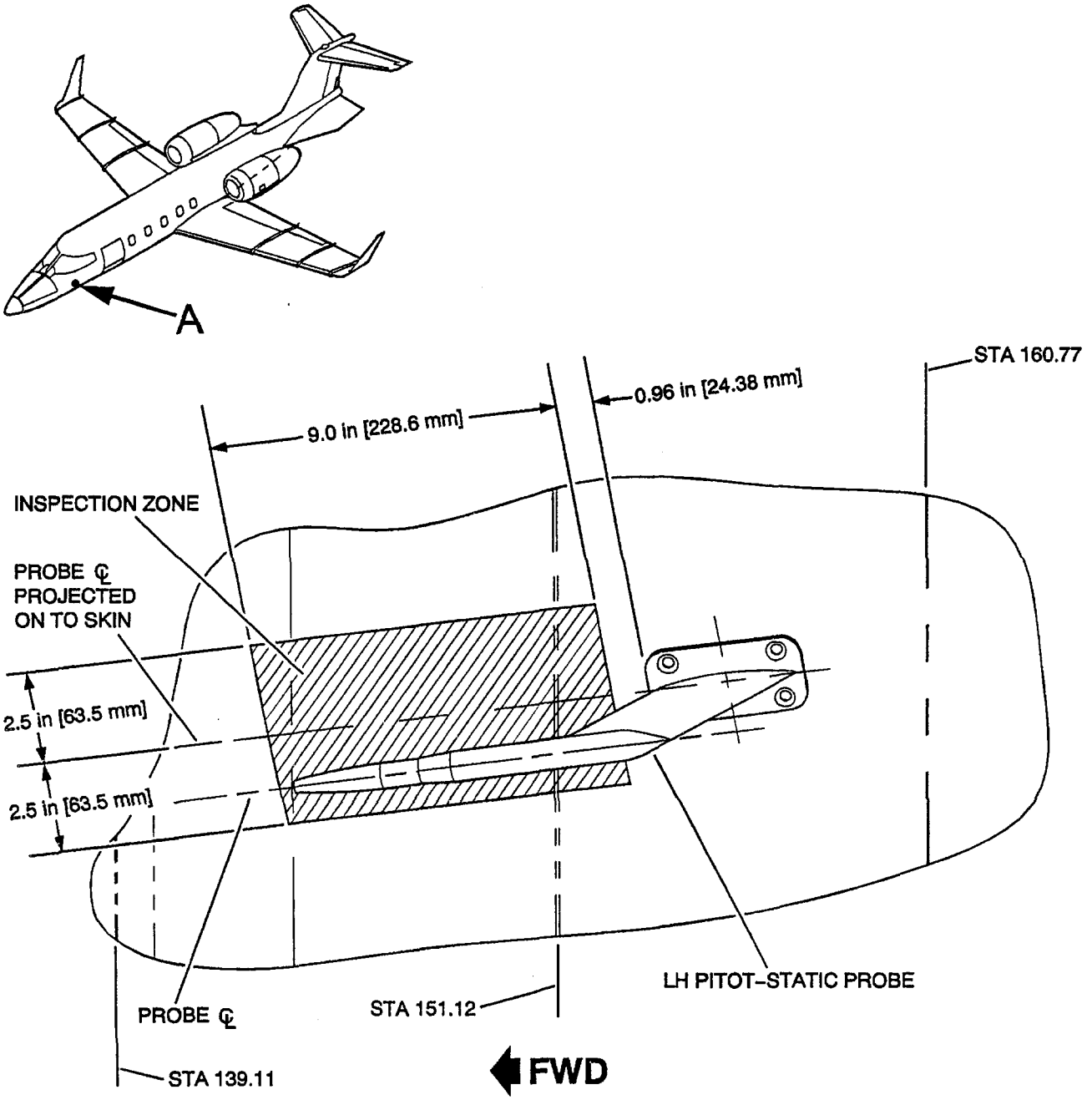
H. Fittings and Forgings

(1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)

(2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (inch [mm])	Minimum Thickness (inch [mm])
0.016 [0.406]	0.0135 [0.3429]
0.020 [0.508]	0.0175 [0.4445]
0.025 [0.635]	0.0225 [0.5715]
0.032 [0.813]	0.0295 [0.7493]
0.040 [1.016]	0.037 [0.940]
0.050 [1.270]	0.046 [1.168]
0.063 [1.600]	0.059 [1.499]
0.071 [1.803]	0.067 [1.702]
0.080 [2.032]	0.076 [1.930]
0.100 [2.540]	0.095 [2.413]
0.125 [3.175]	0.120 [3.048]
0.190 [4.826]	0.180 [4.572]
0.250 [6.350]	0.237 [6.020]

Allowable Material Thickness
Figure 101



VIEW LOOKING INBOARD AT LH SIDE
RH SIDE OPPOSITE

Detail A

S31-532800-102-01

Pitot/Static Probe Zone Skin Contour Inspection
Figure 102

FUSELAGE SKINS - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage skins is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

NOTE: Please see the TEMPORARY REVISION that revises this page.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

ATP® *NOTE: Please see the* ***TEMPORARY REVISION*** *that revises this page.*

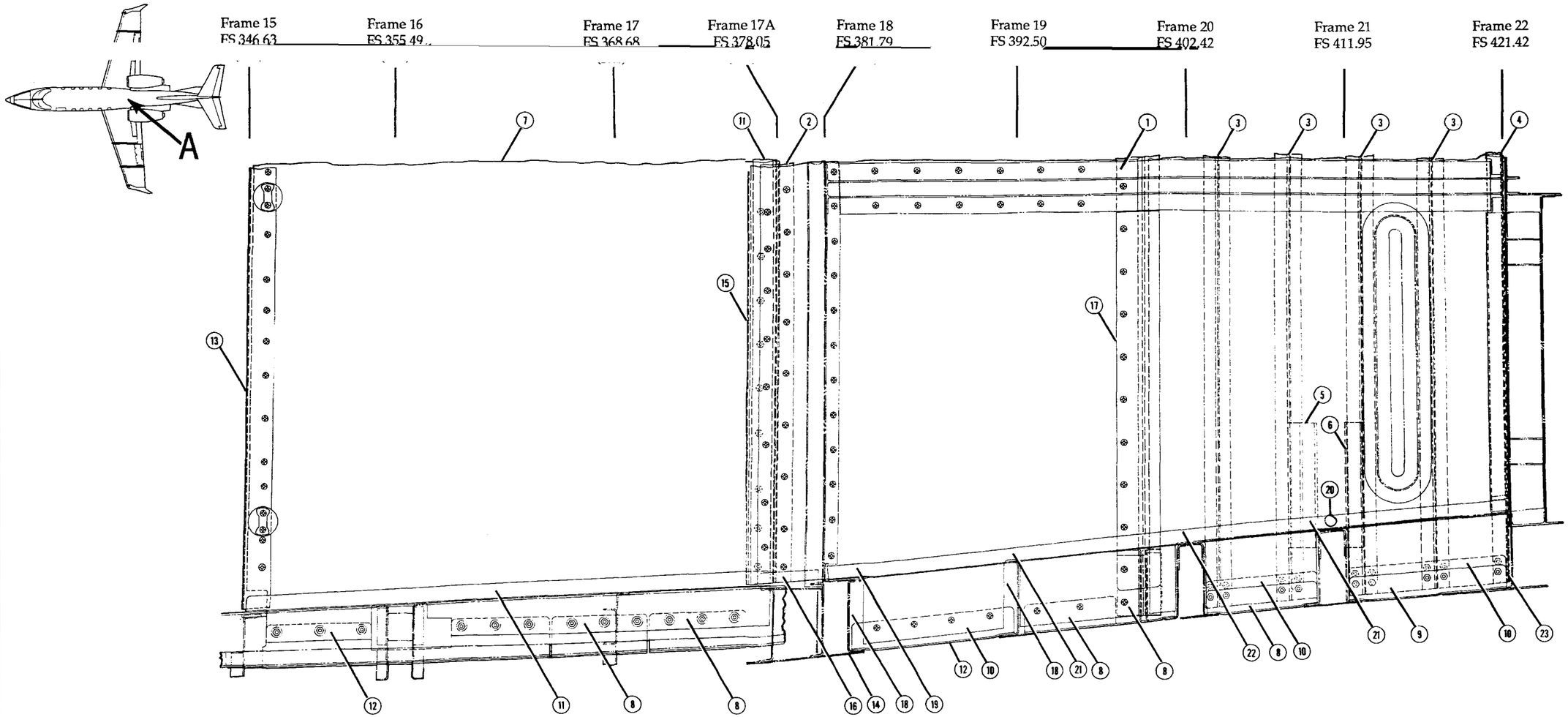
Allowable Material Thickness
Figure 101

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE SEAT AND BAGGAGE FLOOR STRUCTURE - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage seat and baggage floor structures are located within the fuselage between frame 15 and frame 22.
   B. The floor structure provides structural continuity, and support for cabin and baggage compartment areas. The floor structure consist of beam assemblies, webs, channels and minor floor assemblies, with different configurations of components required depending upon aircraft model and fuel systems incorporated.

FUSELAGE SEAT AND BAGGAGE FLOOR STRUCTURE - STRUCTURAL IDENTIFICATION



(VIEW FROM LH SIDE, LOOKING INBOARD)

(TYPICAL)

Detail A

Fuselage Seat and Baggage Floor Structure Repair Index
Figure 1 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2411390	Seat & Baggage Floor Instl.	1	–	–	–	–
	2511390	Seat & Baggage Floor Instl.	2	–	–	–	–
	2411391	• Beam Instl.	3	–	–	–	–
1	2411391	• • Beam Assy.	3	–	–	–	Replace
	2411391	• • • Upper Cap	3	2024-T42 Clad	0.125	–	Replace
	2411391	• • • Lower Cap	3	S-578	–	–	Replace
	2411391	• • • Web	3	2024-T3 Clad	0.063	–	Replace
	2411391	• • • Radius Filler	3	2024-T3 Clad	0.080	–	Replace
	2411391	• • • Stiffener (3 ea.)	3	S-554	–	–	Replace
	2411391	• • • Attachment Web, LH & RH	4	2024-T42 Clad	0.050	–	Replace
	2411391	• • • Attachment Web, LH & RH	5	2024-T42 Clad	0.050	–	Replace
	2411391	• • • • Clip	5	2024-T42 Clad	0.050	–	Replace
	2411391	• • • Clip (2 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2411391	• • • Filler (2 ea.)	3	2024-T351 Clad	0.250	–	Replace
	2411391	• • • Stiffener	3	S-569	–	–	Replace
2	2411392	• Beam Instl.	3	–	–	–	–
	2411392	• • Beam Assy.	3	–	–	–	Replace
	2411392	• • • Upper Cap	3	S-551	–	–	Replace
	2411392	• • • Fitting (4 ea.)	3	2024-T3 Clad	0.160	–	Replace
	2411392	• • • Filler (2 ea.)	3	2024-T3 Clad	0.080	–	Replace
	2411392	• • • Stiffener (9 ea.)	6	S-554	–	–	Replace
	2411392	• • • Stiffener	3	S-551	–	–	Replace
	2411392	• • • Stiffener	3	S-554	–	–	Replace
	2411392	• • • Lower Cap	3	S-565	–	–	Replace
	2411392	• • • Filler (2 ea.)	3	2024-T3 Clad	0.160	–	Replace
	2411392	• • • Bushing (2 ea.)	3	4	4	F25	Replace
	2411392	• • • Support Assy. (2 ea.)	7	–	–	–	Replace
	2411392	• • • • Support	7	2024-T3 Clad	0.063	–	Replace
	2411392	• • • Web	3	2024-T3 Clad	0.063	–	Replace
	2411393	• Beam Instl.	3	–	–	–	Replace
3	2411393	• • Beam Assy.	3	–	–	–	Replace
	2411393	• • • Upper Cap	3	S-566	–	–	Replace
	2411393	• • • Lower Cap	3	S-566	–	–	Replace
	2411393	• • • Web	3	2024-T3 Clad	0.063	–	Replace
4	2411394	• Beam Instl.	3	–	–	–	Replace
	2411394	• • Beam Assy.	3	–	–	–	Replace
	2411394	• • • Upper Cap	3	S-568	–	–	Replace
	2411394	• • • Lower Cap	3	S-568	–	–	Replace
	2411394	• • • Web	3	2024-T3 Clad	0.050	–	Replace
	2311391	• Gusset Instl.	3	–	–	–	Replace
5	2311391	• • Gusset Assy.	3	–	–	–	Replace
6	2311391	• • • Gusset (4 ea.)	3	2024-T42 Clad	0.125	–	Replace
7	2411395	• Seat Floor	3	1	–	–	Replace
8	2411395	• Attach Angle, LH & RH (4 ea.)	3	2024-T42 Clad	0.080	–	Replace
9	2411395	• Attach Angle, LH & RH	8	2024-T42 Clad	0.020	–	Replace
10	2411395	• Channel, LH & RH (2 ea.)	9	2024-T42 Clad	0.050	–	Replace

Fuselage Seat and Baggage Floor Structure Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
11	2411395	• Seal Angle (3 ea.)	3	2024-T42 Clad	0.080	–	Replace
12	2411395	• Attach Angle, LH & RH (2 ea.)	3	2024-T42 Clad	0.080	–	Replace
13	2411395	• Attach Angle	3	2024-T42 Clad	0.050	–	Replace
14	2411395	• Filler (2 ea.)	3	2024-T42 Clad	0.050	–	Replace
	2511391	• Fuel Cell Floor, Aft	10	[1]	–	–	Replace
	2511411	• Seal Angle, LH & RH	10	2024-T42 Clad	0.032	–	Replace
	2511393	• Drain Pan, Fuel Cell (2 ea.)	10	[2]	–	–	Replace
	2511411	• Attach Angle, LH & RH	10	2024-T3 Clad	0.032	–	Replace
	2511391	• Splice (2 ea.)	2	2024-T3 Clad	0.080	–	Replace
	2511391	• Channel	2	2024-T3 Clad	0.032	–	Replace
	2511392	• Fuel Cell Floor	2	[1]	–	–	Replace
	2511411	• Angle	11	2024-T42 Clad	0.090	–	Replace
	2411395	• Seal Angle, LH & RH	1	[2]	–	–	Replace
	2411396	• Nutplate Assy.	12	–	–	–	Replace
	2411396	• • Plate (2 ea.)	12	2024-T42 Clad	0.032	–	Replace
15	2411395	• Attach Bracket	1	2024-T3 Clad	0.050	–	Replace
16	2411395	• Seal Channel, LH & RH	1	2024-T42 Clad	0.032	–	Replace
17	2411395	• Splice	3	2024-T42 Clad	0.080	–	Replace
18	2411395	• Seal Angle (12 ea.)	3	2024-T3 Clad	0.020	–	Replace
19	2411395	• Seal Angle (2 ea.)	3	2024-T3 Clad	0.032	–	Replace
20	2411395	• Tube	3	[3]	–	–	Replace
21	2411395	• Seal Angle, LH & RH	3	[2]	–	–	Replace
22	2411395	• Seal Angle, LH & RH	1	[2]	–	–	Replace
	2411395	• Seal Angle	1	2024-T3 Clad	0.020	–	Replace
23	2411395	• Baggage Floor	13	2024-T3 Clad	0.050	–	Replace
	2411395	• Baggage Floor	14	2024-T3 Clad	0.050	–	Replace

Fuselage Seat and Baggage Floor Structure Repair Index
Figure 1 (Sheet 3 of 4)

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT
2	36-001 AND SUBSEQUENT
3	31-001 AND SUBSEQUENT, INCLUDING 31 SERIES AIRCRAFT EQUIPPED FOR EXTENDED RANGE; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	31-001 THRU 31-037; 35-001 THRU 35-667; 36-001 THRU 36-063
5	31-038 AND SUBSEQUENT; 35-668 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
6	31-001 AND SUBSEQUENT; 35-087 AND SUBSEQUENT; 36-022 AND SUBSEQUENT
7	31-001 AND SUBSEQUENT; 35-345 AND SUBSEQUENT; 36-046 AND SUBSEQUENT
8	35-001 THRU 35-240; 36-001 THRU 36-044
9	31-001 AND SUBSEQUENT; 35-241 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
10	31-001 AND SUBSEQUENT EQUIPPED FOR EXTENDED RANGE; 36-001 AND SUBSEQUENT
11	31-001 AND SUBSEQUENT EQUIPPED FOR EXTENDED RANGE
12	31-001 AND SUBSEQUENT; 35-094 AND SUBSEQUENT
13	31-001 THRU 31-032, 31-035 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
14	31-033 AND 31-034

NOTES:

1. Core 1/8 Cell, 5056 AL, -, 0015 Foil, 6.1#/FT^3 Normal Density, CR III Treated. Skin both sides with 0.050 2024T3 Clad, overall thickness 1.050.

2. No. 181 Glass Cloth Per MIL-F-9084, Polyester per MIL-R-7575, Type II.

3. 0.187 O.D. X 0.035 I.D., 5052-0 AL Tubing

4. 0.625 OD X 0.125 W, 4130N Steel Tube.

Fuselage Seat and Baggage Floor Structure Repair Index
Figure 1 (Sheet 4 of 4)

FUSELAGE SEAT AND BAGGAGE FLOOR SUPPORT STRUCTURE - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage seat and baggage floor support structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

FUSELAGE SEAT AND BAGGAGE FLOOR STRUCTURE - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.
   B. Fabricate glass cloth seal angles using two piles No. 181 glass cloth per MIL-F-9084 and polyester per MIL-R-7575, Type II.

TAILCONE ASSEMBLY - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

A. The tailcone assembly begins at FS 421 (frame 22) and runs to the aft edge of the tailcone stringer. The major assemblies consist of frames, stringers, skins, dorsal assembly, ventral fin assembly (*except Model 31 Series*), delta fins (*Model 31 Series only*) , and tailcone stinger assembly.

TAILCONE ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

TEMPORARY REVISION NO. 53-4

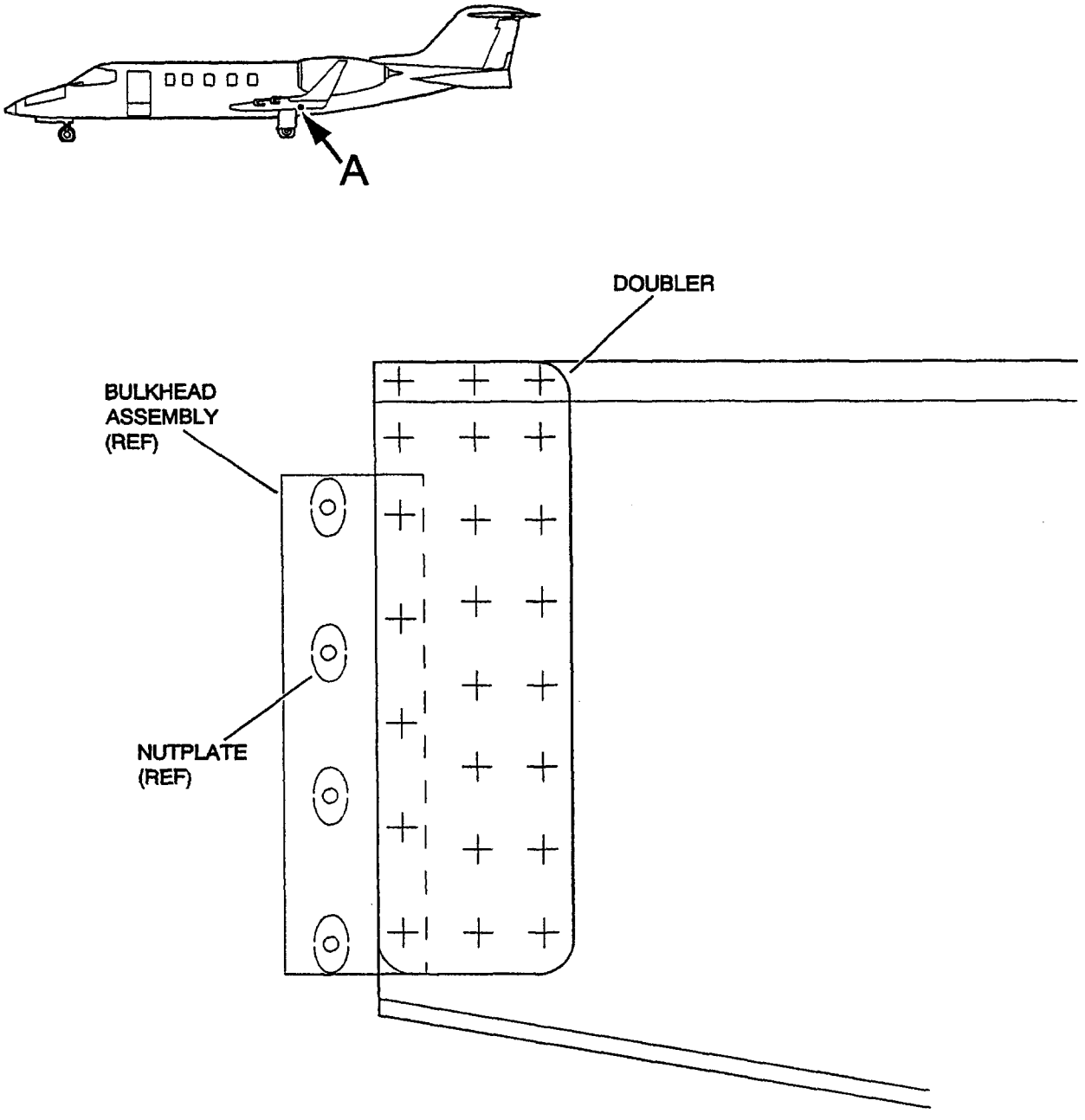
MANUALS AFFECTED:	Learjet 20/30 Series Structural Repair Manual
FILING INSTRUCTIONS:	Insert prior to 53-30-00, page 201, dated May 15, 1992 and retain until further notice.
REASON:	To add repair procedure.
INSTRUCTIONS:	Revise manual as follows:

TAILCONE ASSEMBLY - REPAIR

1. APPROVED REPAIRS

A. Refer to Chapter 51 for typical repairs.

B. Aft Wing-to-Fuselage Fairing, LH and RH Cracked or Oversized Fastener Holes Repair
   (1) Stop-drill cracks. (Refer to 51-70-02.)
   (2) Fabricate external repair doubler. (See Figure 201.)
      (a) Make doubler from 0.040 inch thick 2024-T3 clad aluminum, finish F4-6 (refer to 51-30-04) that is sized to extend a minimum of two (2) fastener rows beyond the forward fastener row.
      (b) Radius corners of doubler 0.025 inch.
      (c) Chamfer the edge of the doubler.
   (3) Position doubler and secure with fasteners (CR3214-4 or CR3242-4) that have been wetted with Pro-Seal 890.
   (4) Restore original surface finish.



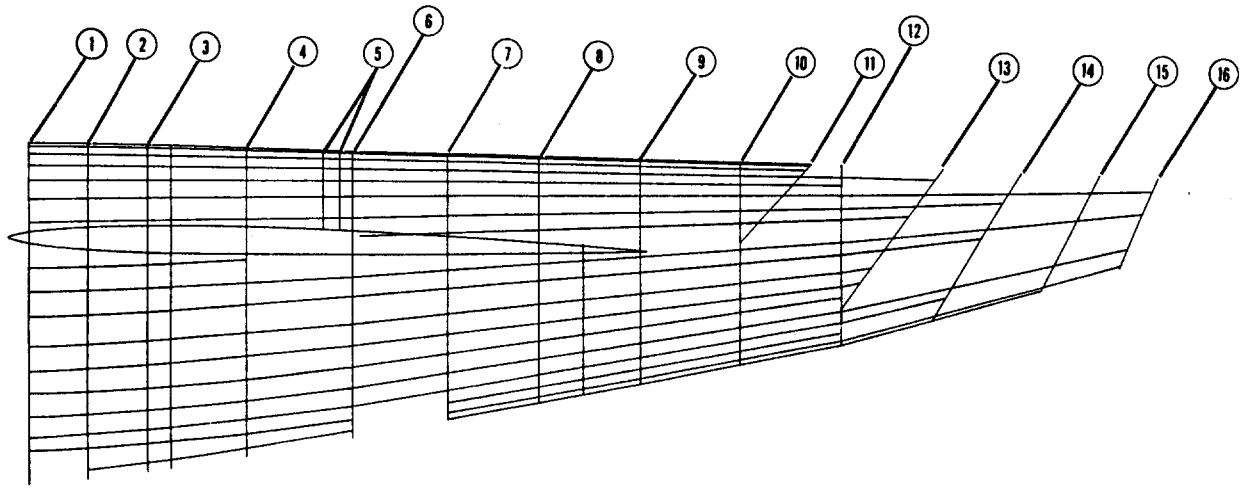
Aft Wing-to-Fuselage Fairing Fastener Holes Repair
Figure 201

TAILCONE ASSEMBLY - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for typical repairs.

NOTE: Please see the **TEMPORARY REVISION** that revises this page.

TAILCONE BULKHEAD (FRAME) - STRUCTURAL IDENTIFICATION



FWD

(TYPICAL)

3-18D

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 1 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612000	Tailcone Assembly	1	–	–	–	–
1	2512225	• Bulkhead Instl., Frame 22	2	–	–	–	–
	2512220	• Bulkhead Instl., Frame 22	3	–	–	–	–
	2512225	• • Bulkhead Member, LH & RH	2	2024-T42 Clad	0.050	–	Replace
	2512220	• • Bulkhead Member, LH & RH	3	2024-T42 Clad	0.050	–	Replace
	2511411	• • Cell Divider	2	S-555	–	–	Replace
	2412220	• • Skin Splice	2	2024-T3 Clad	0.063	–	Replace
	2512225	• • Bulkhead Assy.	2	–	–	–	–
	2512220	• • Bulkhead Assy.	3	–	–	–	–
	2512225	• • • Attach Angle	2	2024-T42 Clad	0.032	–	Replace
	2512225	• • • Bulkhead Member, Lwr	2	2024-T42 Clad	0.050	–	Replace
	2512220	• • • Bulkhead Member, Lwr	3	2024-T42 Clad	0.050	–	Replace
	2512225	• • • Support Angle	2	2024-T42 Clad	0.050	–	Replace
	2512225	• • • Cell Divider	2	S-555	–	–	Replace
	2512220	• • • Cell Divider	3	S-555	–	–	Replace
	2511413	• • • Fitting (2 ea.)	2	2024-T4 Rod	2.750	–	Replace
	2511411	• • • Filler	2	2024-T3 Clad	0.050	–	Replace
	2412221	• • • Tee, LH & RH	1	S-558	–	–	Replace
	2412221	• • • Clip Assy., LH & RH	2	2024-T42 Clad	0.063	–	Replace
	2412221	• • • Clip Assy., LH & RH	2	2024-T42 Clad	0.050	–	Replace
	2412221	• • • Attachment, LH & RH	1	2024-T42 Clad	0.063	–	Replace
	2412221	• • • Seal Angle	1	2024-T42 Clad	0.025	–	Replace
	2412221	• • • Clip Assy. (4 ea.)	2	2024-T42 Clad	0.063	–	Replace
	2412221	• • • Clip Assy. (6 ea.)	3	2024-T42 Clad	0.063	–	Replace
	2412221	• • • Angle (4 ea.)	1	2024-T3 Clad	0.090	–	Replace
	2412221	• • • Angle (4 ea.)	1	S-568	–	–	Replace
	2412221	• • • Angle, LH & RH (3 ea.)	1	S-557	–	–	Replace
	2412221	• • • Web (3 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2412221	• • • Tee (2 ea.)	1	S-558	–	–	Replace
	2412221	• • • Tee, LH & RH (2 ea.)	1	S-558	–	–	Replace
	2412221	• • • Web, Lwr (2 ea.)	2	2024-T3 Clad	0.032	–	Replace
	2412220	• • • Web, Lwr (2 ea.)	3	2024-T3 Clad	0.032	–	Replace
	2412220	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	2412220	• • • Bulkhead Joint, LH & RH	1	S-556	–	–	Replace
	2412220	• • • Filler (4 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2512225	• • • Doubler	2	2024-T3 Clad	0.050	–	Replace
	2512220	• • • Doubler	3	2024-T3 Clad	0.050	–	Replace
	2512225	• • • Web, Fwd	2	2024-T3 Clad	0.050	–	Replace
	2512220	• • • Web, Fwd	3	2024-T3 Clad	0.050	–	Replace
	2512225	• • • Web, Aft LH & RH	2	2024-T3 Clad	0.032	–	Replace
	2512220	• • • Web, Aft LH & RH	3	2024-T3 Clad	0.032	–	Replace

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 2 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
2	2512230	• Frame Instl., Frame 23	1	–	–	–	–
	2512230	• • Frame Assy.	1	–	–	–	–
	2512230	• • • Frame Member, LH & RH	1	2024-T42 Clad	0.050	–	Replace
	2512230	• • • Doubler (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
3	2612240	• Frame Instl., Frame 24	1	–	–	–	–
	2612241	• • Doubler, Lwr Fwd LH	1	2024-T3 Clad	0.071	–	Replace
	2612241	• • Doubler, Lwr Aft LH	1	2024-T3 Clad	0.071	–	Replace
	2612241	• • Plate, LH & RH Aft	1	2024-T42 Clad	0.071	–	Replace
	2612241	• • Doubler, RH Fwd	1	2024-T3 Clad	0.071	–	Replace
	2612241	• • Doubler, RH Aft	1	2024-T3 Clad	0.071	–	Replace
	2612241	• • Frame, LH & RH (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612241	• • Plate, LH & RH Fwd	1	2024-T42 Clad	0.071	–	Replace
	2612241	• • Plate, LH & RH Aft	1	2024-T42 Clad	0.071	–	Replace
	2612241	• • Frame, LH & RH Aft	1	2024-T42 Clad	0.050	–	Replace
	2612241	• • Clip, LH & RH (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612241	• • Stiffener (4 ea.)	1	S-571	–	–	Replace
	2612041	• • Filler (4 ea.)	1	2024-T3 Clad	0.020	–	Replace
	2612041	• • Attach Angle, LH & RH (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612041	• • Clip (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612041	• • Attach Angle (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612241	• • Clip (18 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612241	• • Divider (2 ea.)	1	S-555	–	–	Replace
	2612240	• • Strap, LH & RH	1	2024-T3 Clad	0.040	–	Replace
	2612240	• • Cap, LH & RH Side	1	2024-T42 Clad	0.025	–	Replace
	2612240	• • Cap, LH & RH	1	2024-T42 Clad	0.025	–	Replace
	2612240	• • Cap, Lower	1	2024-T3 Clad	0.025	–	Replace
	2612240	• • Cap, Upper	1	2024-T3 Clad	0.025	–	Replace
	2612040	• Beam Assy.	1	–	–	–	–
	2612041	• • Channel, Upper	1	S-729	–	–	Replace
	2612041	• • Channel, Lower	1	S-729	–	–	Replace
	2612042	• • Fitting (2 ea.)	1	–	–	–	Replace
	2612041	• • Doubler (4 ea.)	1	2024-T3 Clad	0.071	–	Replace
	2612041	• • Web Assy., Fwd	1	–	–	–	Replace
	2612041	• • • Web	1	2024-T42 Clad	0.050	–	Replace
	2612041	• • Web Assy., Aft	1	–	–	–	Replace
	2612041	• • • Web	1	2024-T42 Clad	0.050	–	Replace
	2612041	• • Filler (4 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2612041	• • Stiffener (4 ea.)	1	S-571	–	–	Replace
	2612041	• • Stiffener (6 ea.)	1	S-636	–	–	Replace
	2612041	• • Zee (3 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2612041	• • Stiffener, LH & RH Fwd	1	2024-T42 Clad	0.040	–	Replace
	2612041	• • Stiffener, Aft (2 ea.)	1	2024-T42 Clad	0.040	–	Replace

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612041	• • Doubler, Aft (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2612041	• • Doubler, Fwd (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2612041	• • Stiffener (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612041	• • Baffle	1	2024-T3 Clad	0.032	–	Replace
	2612041	• • Shim (4 ea.)	1	2024-T3 Clad	0.093	–	Replace
	2612041	• • Plate (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612041	• • Shim, Laminated (Max. 0.032)	1	[1]	–	–	Replace
	2612041	• • Strap (3 ea.)	1	2024-T3 Clad	0.160	–	Replace
4	2612250	• Frame Instl., Frame 25	1	–	–	–	–
	2612250	• • Frame Assy.	1	–	–	–	–
	2612250	• • • Frame	1	2024-T42 Clad	0.050	–	Replace
	2612250	• • Filler (2 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2612250	• • Cell Divider	1	S-555	–	–	Replace
	2612250	• • Stiffener	1	S-644	–	–	Replace
	2612250	• • Strap	1	2024-T3 Clad	0.080	–	Replace
	2612250	• • Attach Angle (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612250	• • Filler	1	2024-T3 Clad	0.025	–	Replace
	2612251	• • Web (2 ea.)	1	2024-T3 Clad	0.125	–	Replace
5	2612255	• Frame Instl., Frame 25A	1	–	–	–	–
	2612255	• • Bulkhead, Fwd	1	2024-T42 Clad	0.040	–	Replace
	2612255	• • Bulkhead, Aft	1	2024-T42 Clad	0.040	–	Replace
	2612255	• • Bulkhead Support, Fwd	1	2024-T42 Clad	0.050	–	Replace
	2612255	• • Bulkhead Support, Aft	1	2024-T42 Clad	0.050	–	Replace
	2612255	• • Cap, LH & RH	1	2024-T42 Clad	0.025	–	Replace
	2612255	• • Cap, Upper	1	2024-T42 Clad	0.025	–	Replace
	2612058	• • Filler (4 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2612256	• • Support Channel, LH & RH	1	2024-T42 Clad	0.032	–	Replace
	2612256	• • Support Channel, LH & RH	1	2024-T3 Clad	0.040	–	Replace
	2612256	• • Bracket, LH & RH (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612256	• • Angle (8 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612256	• • Shim (4 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2612256	• • Filler (4 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2612256	• • Filler (6 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2612256	• • Tee, LH & RH (2 ea.)	1	S-733	–	–	Replace
	2612256	• • Angle (8 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612256	• • Angle (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2612256	• • Intercostal	1	2024-T42 Clad	0.032	–	Replace
	2612256	• • Tee, LH & RH	1	S-733	–	–	Replace
	2612256	• • Intercostal, LH & RH (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612055	• • Aft Support Beam Assy.	1	–	–	–	–
	2612055	• • • Support Channel, Upper	1	S-728	–	–	Replace
	2612055	• • • Support Channel, Lower	1	S-728	–	–	Replace

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612055	• • • Web, Aft	1	2024-T3 Clad	0.040	–	Replace
	2612055	• • • Web, Fwd	1	2024-T3 Clad	0.040	–	Replace
	2612055	• • • Shim, Laminated (Max. 0.032)	1	[1]	–	–	Replace
	2612057	• • • Beam Support, Aft (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2612057	• • • Beam Support, Fwd (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2612058	• • • Filler (2 ea.)	1	2024-T3 Clad	0.160	–	Replace
	2612059	• • • Bracket	1	2024-T3 Clad	0.040	–	Replace
	2612058	• • • Filler (2 ea.)	1	2024-T3 Clad	0.160	–	Replace
	2612055	• • • Baffle (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2612059	• • • Support Bracket	1	2024-T42 Clad	0.063	–	Replace
	2612059	• • • Bracket (3 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2612256	• • • Support Angle (4 ea.)	1	2024-T3 Clad	0.040	–	Replace
	2612056	• • • Fitting, LH & RH	1	–	–	–	Replace
	2652096	• • • Former, LH & RH	1	2024-T42 Clad	0.040	–	Replace
6	2512260	• Bulkhead Instl., Frame 26	1	–	–	–	–
	2512260	• • Stop (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2512260	• • Splice Band	1	2024-T3 Clad	0.025	–	Replace
	2412251	• • Clip Assy.	1	2024-T3 Clad	0.050	–	Replace
	2512260	• • Splice Band (3 ea.)	1	2024-T3 Clad	0.025	–	Replace
	2512260	• • Doubler, LH & RH	1	2024-T42 Clad	0.032	–	Replace
	2512260	• • Frame	1	2024-T42 Clad	0.032	–	Replace
7	2512265	• Bulkhead Instl., Frame 26A	1	–	–	–	–
	2512265	• • Frame Assy.	1	–	–	–	–
	2512265	• • • Frame	1	2024-T42 Clad	0.040	F4-1	Replace
	2512265	• • • Washer	1	Copper Sheet [2]	0.050	–	Replace
	2512706	• • • Support	1	2024-T42 Clad	0.050	–	Replace
	2317079	• • • Mount	1	S-557	–	F4-1	Replace
8	2512270	• Bulkhead Instl., Frame 27	1	–	–	–	–
	2512270	• • Support	1	2024-T42 Clad	0.050	–	Replace
	2512270	• • Frame Web	1	2024-T42 Clad	0.040	–	Replace
9	2512280	• Bulkhead Instl., Frame 28	1	–	–	–	–
	2512280	• • Bulkhead	1	2024-T42 Clad	0.040	–	Replace
	2512280	• • Splice Band (3 ea.)	1	2024-T42 Clad	0.025	–	Replace
10	2512290	• Bulkhead Instl., Frame 29	1	–	–	–	–
	2512290	• • Frame Web	1	2024-T42 Clad	0.040	–	Replace
	2512290	• • Angle	1	S-607	–	–	Replace
11	2512295	• Bulkhead Instl., Frame 29A	1	–	–	–	–
	2512295	• • Frame Web	1	2024-T42 Clad	0.050	F4-1	Replace
12	2512300	• Bulkhead Instl., Frame 30	1	–	–	–	–
	2512300	• • Frame	1	2024-T42 Clad	0.040	F4-1	Replace
	2512300	• • Splice Band	1	2024-T42 Clad	0.025	F4-1	Replace
	2512300	• • Splice Band	1	2024-T3 Clad	0.025	F4-1	Replace

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 5 of 7)

Learjet

STRUCTURAL REPAIR MANUAL

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
13	2312031	• Bulkhead Instl., Frame 31	1	–	–	–	–
	2312031	• • Web, LH & RH	1	2024-T3 Clad	0.032	–	Replace
	2312031	• • Filler (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2312031	• • Bulkhead	4	2024-T42 Clad	0.050	–	Replace
	2312031	• • Bulkhead	5	2024-T42 Clad	0.050	–	Replace
	2312031	• • Cover (2 ea.)	1	2024-T4 Clad	0.032	–	Replace
	2312031	• • Doubler	1	2024-T3 Clad	0.080	–	Replace
	2312031	• • Doubler	6	2024-T3 Clad	0.080	–	Replace
	2312031	• • Doubler	7	2024-T3 Clad	0.080	–	Replace
14	2312032	• Bulkhead Instl., Frame 32	1	–	–	–	–
	2312032	• • Bulkhead	1	2024-T42 Clad	0.050	–	Replace
	2312032	• • Doubler (2 ea.)	1	2024-T3 Clad	0.080	F4-1	Replace
	2312031	• • Doubler	1	2024-T3 Clad	0.080	–	Replace
15	2312033	• Bulkhead Instl., Frame 33	1	–	–	–	–
	2312033	• • Bulkhead	1	2024-T42 Clad	0.050	–	Replace
	2312033	• • Doubler (3 ea.)	1	2024-T3 Clad	0.080	F4-1	Replace
16	2312034	• Bulkhead Instl., Frame 34	1	–	–	–	–
	2312034	• • Bulkhead	1	2024-T42 Clad	0.071	–	Replace
	2312034	• • Filler	1	2024-T3 Clad	0.025	–	Replace
	2312034	• • Doubler, LH & RH	1	2024-T42 Clad	0.025	–	Replace

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 6 of 7)

CODES	EFFECTIVITIES
1	31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	36-001 AND SUBSEQUENT
3	31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT
4	35-001 THRU 35-646; 36-001 THRU 36-059
5	31-002 AND SUBSEQUENT; 35-647 AND SUBSEQUENT; 36-059 AND SUBSEQUENT
6	31-002 THRU 31-029; 35-001 THRU 35-648; 36-001 THRU 36-057
7	31-030 AND SUBSEQUENT; 35-649 AND SUBSEQUENT; 36-058 AND SUBSEQUENT

NOTES:

1. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

2. Annealed per QQ-C-576

Tailcone Bulkhead (Frame) Repair Index
Figure 1 (Sheet 7 of 7)

TAILCONE BULKHEAD (FRAME) - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone bulkhead (frame) structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

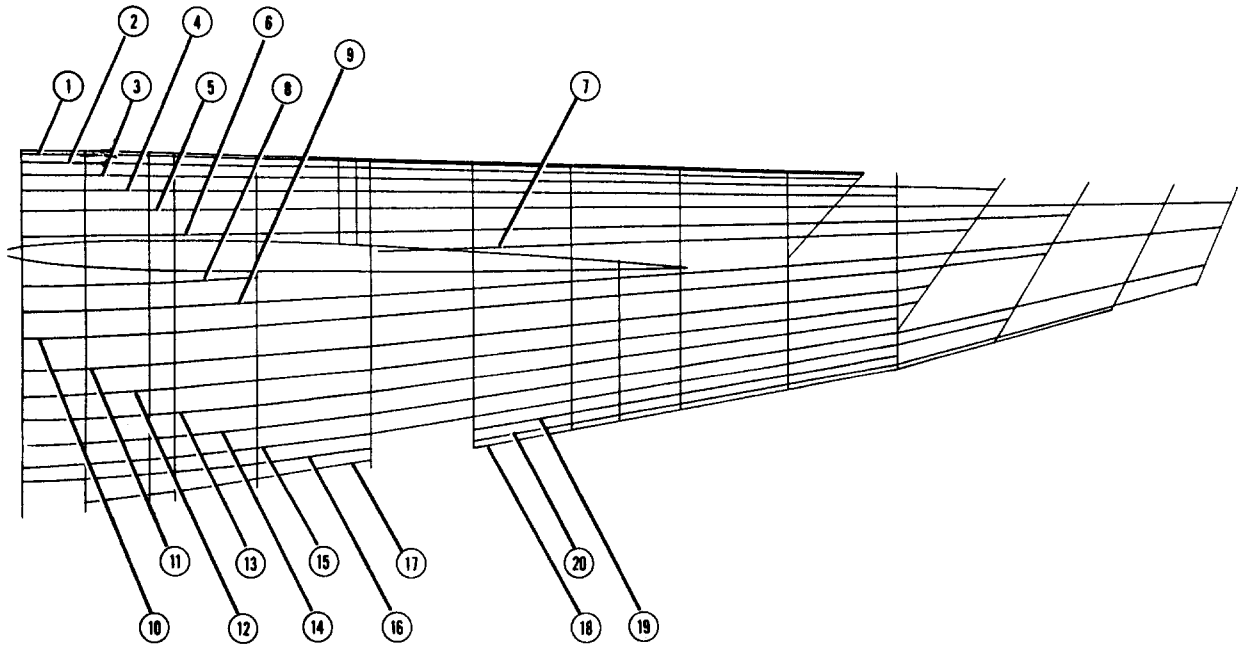
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

TAILCONE BULKHEAD (FRAME) - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

TAILCONE STRINGERS - STRUCTURAL IDENTIFICATION



(TYPICAL)

3-18D

Tailcone Stringer Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612000	Tailcone Assy.	1	–	–	–	–
1	2612000	• Stringer No. 2, LH & RH	1	S-554	–	–	51-70-04
2	2612000	• Stringer No. 3, LH & RH	1	S-554	–	–	51-70-04
3	2612000	• Stringer No. 4, LH & RH	1	S-554	–	–	51-70-04
4	2612000	• Stringer No. 5, LH & RH	1	S-554	–	–	51-70-04
5	2612000	• Stringer No. 6, LH & RH	1	S-554	–	–	51-70-04
6	2612000	• Stringer No. 7, LH & RH	1	S-554	–	–	51-70-04
7	2612000	• Stringer No. 8, LH & RH	1	S-554	–	–	51-70-04
8	2612000	• Stringer No. 9, LH & RH	1	S-554	–	–	51-70-04
9	2612000	• Stringer No. 10, LH & RH	1	S-554	–	–	51-70-04
10	2612000	• Stringer No. 11, LH & RH	1	S-554	–	–	51-70-04
11	2612000	• Stringer No. 12, LH & RH	1	S-554	–	–	51-70-04
12	2612000	• Stringer No. 13, LH & RH	1	S-554	–	–	51-70-04
13	2612000	• Stringer No. 13A, LH & RH	1	S-554	–	–	51-70-04
14	2612000	• Stringer No. 14, LH & RH	1	S-556	–	–	51-70-04
15	2612000	• Stringer No. 15, LH & RH	1	S-554	–	–	51-70-04
16	2612000	• Stringer No. 16, LH & RH	1	S-554	–	–	51-70-04
17	2612000	• Stringer No. 17, LH & RH	1	S-554	–	–	51-70-04
18	2512000	• Stringer No. 18, LH & RH	2	S-554	–	–	51-70-04
	2612000	• Stringer No. 18, LH & RH	3	S-554	–	–	51-70-04
19	2512000	• Stringer No. 16, LH & RH	1	S-554	–	–	51-70-04
20	2512000	• Stringer No. 17, LH & RH	2	S-554	–	–	51-70-04
	2512000	• Stringer No. 17, LH & RH	3	S-554	–	–	51-70-04
	2512000	• Stringer No. 2, RH	1	S-554	–	–	51-70-04
	2612000	• Stringer No. 18A, LH & RH	3	S-554	–	–	51-70-04

CODES	EFFECTIVITIES
1	31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-001 THRU 35-646; 36-001 THRU 36-058
3	31-002 AND SUBSEQUENT; 35-647 AND SUBSEQUENT; 36-059 AND SUBSEQUENT

Tailcone Stringer Repair Index
Figure 1 (Sheet 2 of 2)

TAILCONE STRINGERS - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone stringers is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

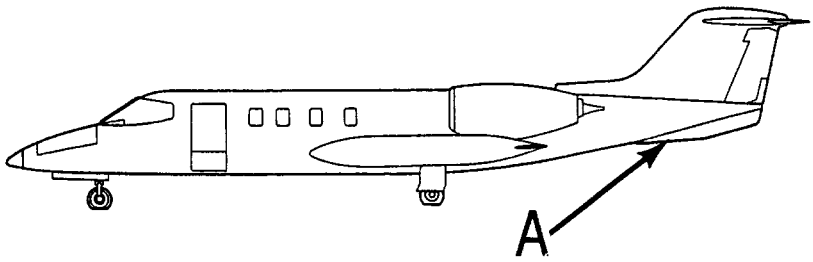
H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

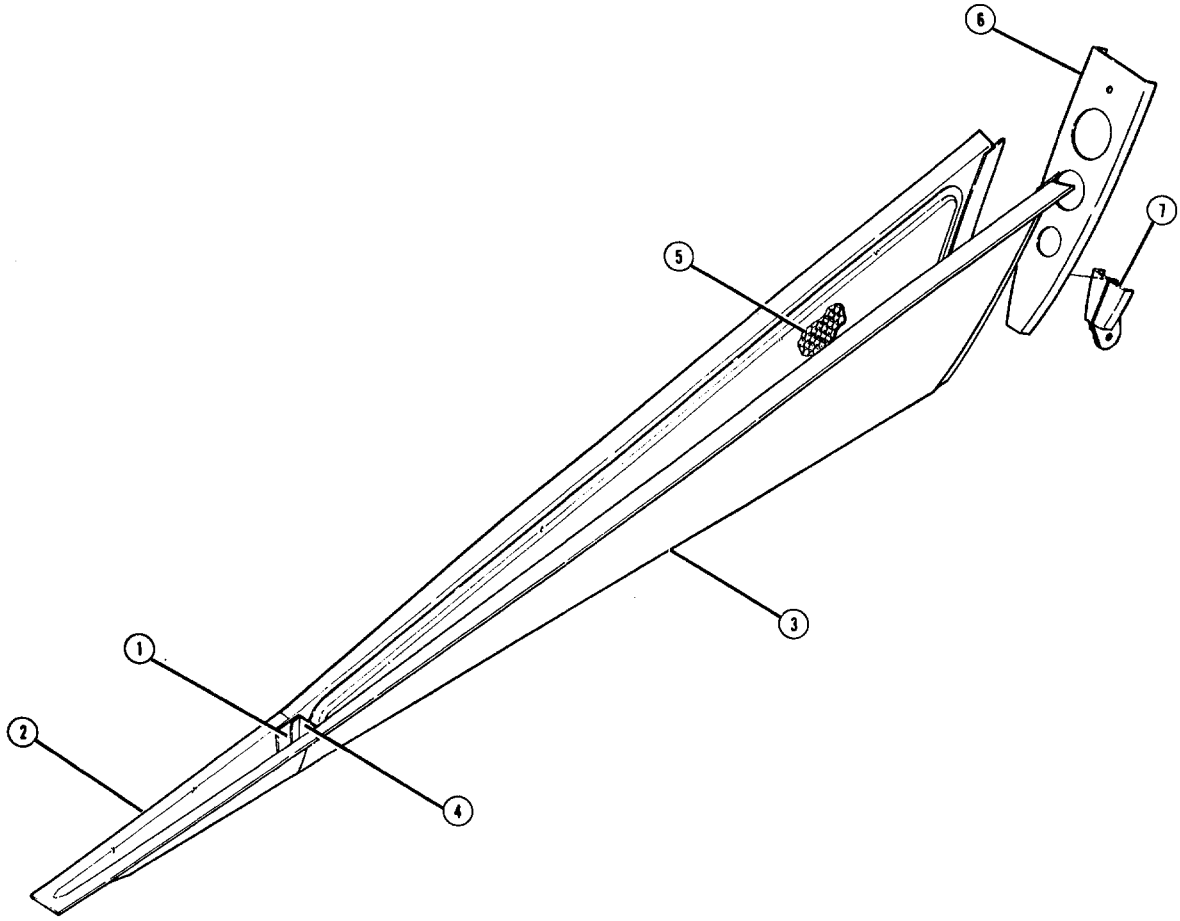
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

TAILCONE STRINGERS - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for typical repairs.



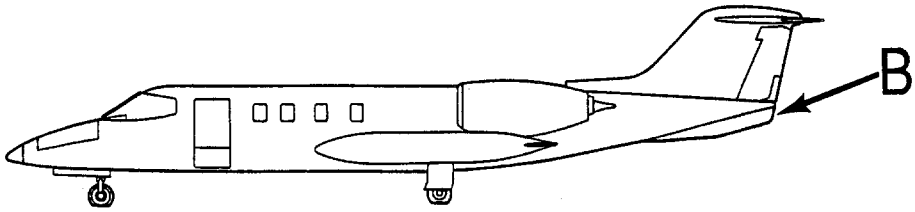


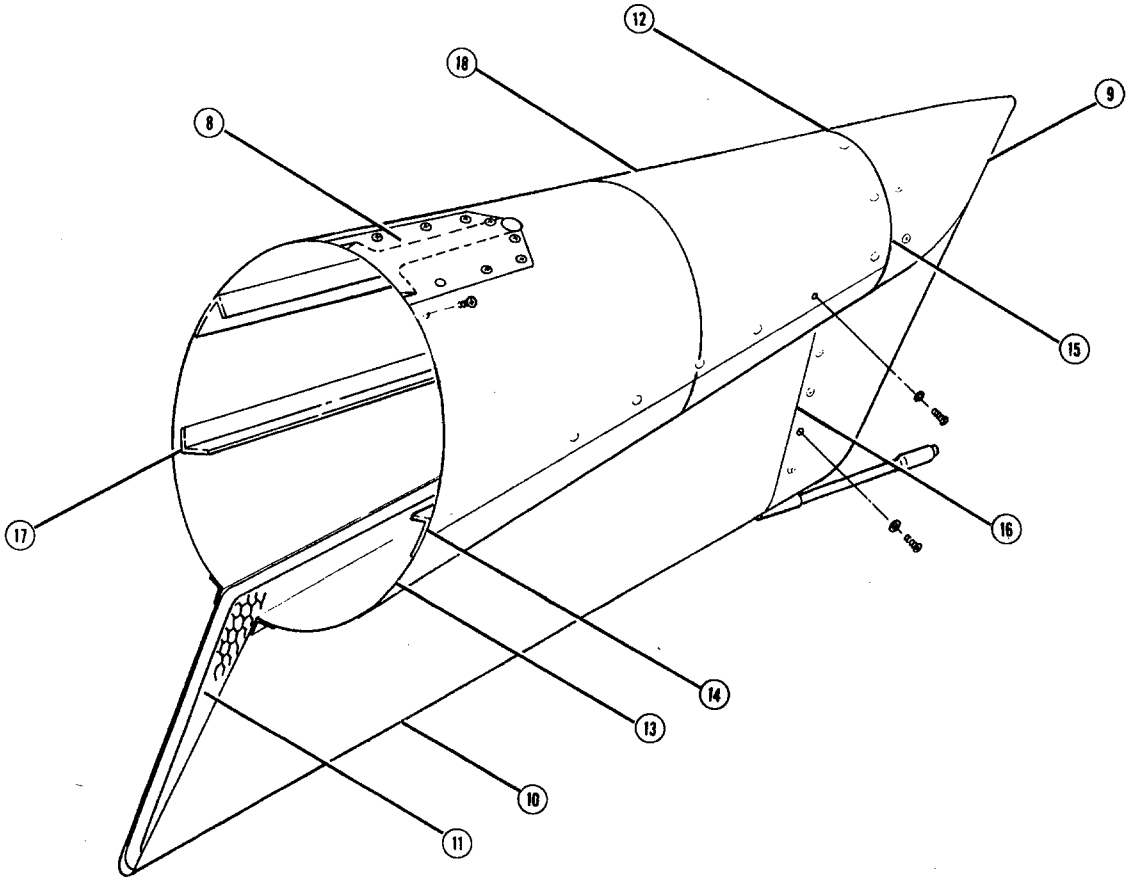
(TYPICAL)

Detail A

5-29C

Tailcone Ventral Fin and Stinger Repair Index
Figure 1 (Sheet 1 of 4)





(TYPICAL)

Detail B

3-20B

Tailcone Ventral Fin and Stinger Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2512005	Ventral Fin Instl.	1	–	–	–	–
	2512005	• Ventral Fin Assy.	1	–	–	–	–
1	2512005	• • Splice Plate	1	.301 Stainless	0.020	–	Replace
2	2512005	• • Skin	1	2024-T42 Clad	0.032	–	51-70-02
3	2312005	• • Skin, LH & RH	1	2024-T42 Clad	0.032	–	51-70-02
4	2312005	• • Bracket	1	2024-T42 Clad	0.050	–	Replace
5	2312005	• • Honeycomb Core, LH & RH	1	1	–	–	–
6	2312005	• • Bracket	1	2024-T42 Clad	0.080	–	Replace
7	2312005	• • Bracket, LH & RH	1	2024-T42 Clad	0.071	–	Replace
	2312005	• • Doubler	1	2024-T3 Clad	0.032	–	Replace
	2312010	• Stinger Instl.	1	–	–	–	–
8	2312010	• • Cover Plate	1	2024-T42 Clad	0.025	–	Replace
	2312010	• • Angle Assy.	1	–	–	–	–
	2312010	• • • Angle	1	2024-T3 Clad	0.040	–	Replace
9	2312012	• • Cover Assy.	2	–	–	–	–
	2312012	• • • Skin, LH & RH	1	6061-0	0.040	–	Replace
	2312010	• • Stinger Assy.	1	–	–	–	–
	2312010	• • • Skin Assy.	1	–	–	–	Replace
10	2312010	• • • • Skin	1	2024-T42 Clad	0.032	–	51-70-02
11	2312010	• • • • Honeycomb Core, LH & RH	1	1	–	–	Replace
12	2312010	• • • Upper Rib (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
13	2312010	• • • Skin, LH & RH Lwr	1	2024-T42 Clad	0.025	–	51-70-02
14	2312010	• • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
15	2312010	• • • Mounting Ring	1	2024-T42 Clad	0.040	–	Replace
16	2312010	• • • Splice Plate	1	2024-T42 Clad	0.032	–	Replace
	2312010	• • • Lower Rib	1	2024-T42 Clad	0.032	–	Replace
17	2312010	• • • Stiffener Angle (6 ea.)	2	S-512	–	–	Replace
	2312010	• • • Stiffener Angle (2 ea.)	3	S-512	–	–	Replace
	2312010	• • • Stiffener Angle, LH & RH	3	S-5101	–	–	Replace
18	2312010	• • • Skin, Upper	1	6061-T6	0.025	–	51-70-02
	3112012	• • • Channel	3	2024-T42 Clad	0.050	F4-6	Replace
	3112012	• • • Bracket (2 ea.)	3	2024-T42 Clad	0.050	F4-6	Replace
	3112012	• • • Clip, LH & RH	3	2024-T3 Clad	0.050	F4-6	Replace
	3112012	• • • Doubler	3	2024-T3 Clad	0.050	F4-6	Replace
	3112012	• • • Angle	3	2024-T42 Clad	0.032	F4-6	Replace
	3112012	• • • Cover Assy., Antenna	3	–	–	–	Replace

Tailcone Ventral Fin and Stinger Repair Index
Figure 1 (Sheet 3 of 4)

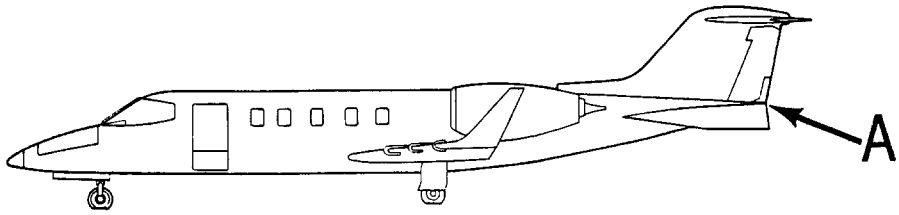
CODES	EFFECTIVITIES
1	35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-001 THRU 35-676; 36-001 THRU 36-062
3	35-677 AND SUBSEQUENT; 36-063 AND SUBSEQUENT

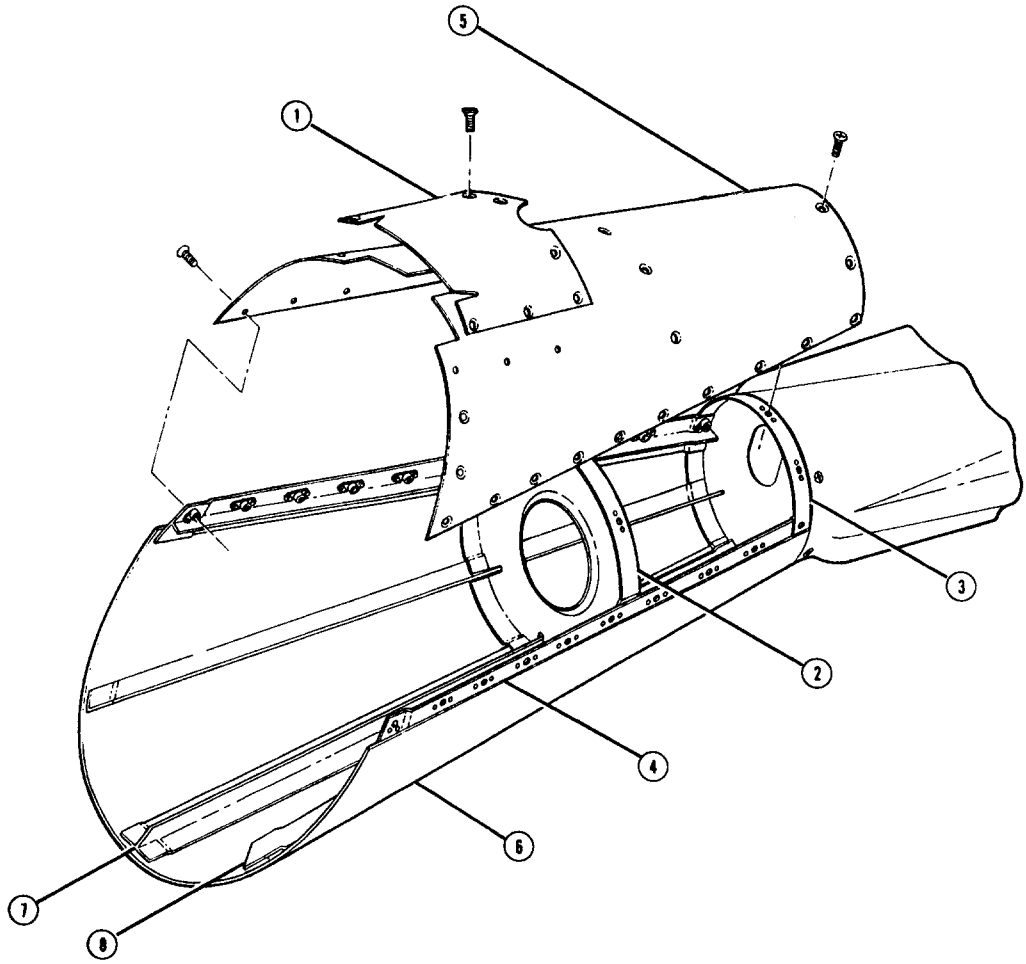
NOTES:

1 Hexcel HRH10-1/8-3.0 (2) - .25 Honeyconb core

Tailcone Ventral Fin and Stinger Repair Index
Figure 1 (Sheet 4 of 4)

TAILCONE STINGER - STRUCTURAL IDENTIFICATION





(TYPICAL)

Detail A

Stinger Repair Index
Figure 2 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3112010	Stinger Instl.	1	–	–	–	–
	3112010	• Stinger Assy.	1	–	–	–	–
1	2312010	• • Cover Plate	1	2024-T42 Clad	0.025	–	Replace
2	3112010	• • Rib Assy., Fwd	1	–	–	–	Replace
	3112011	• • • Rib, Fwd	1	2024-T42 Clad	0.032	F4-6	51-70-02
3	3112010	• • Rib Assy., Aft	1	–	–	–	Replace
	2312010	• • • Rib, Aft	1	2024-T42 Clad	0.032	F4-6	51-70-02
	3112012	• • • Doubler	1	2024-T3 Clad	0.050	F4-6	51-70-02
4	3112010	• • Stiffener Assy., LH & RH	1	–	–	–	Replace
	3112010	• • • Stiffener	1	S-733	–	–	Replace
	3112010	• • Skin Assy.	1	–	–	–	Replace
5	3112010	• • • Skin	1	2024-T42 Clad	0.050	–	Replace
6	3112010	• • Skin, Lwr	1	2024-T42 Clad	0.050	–	Replace
7	3112010	• • Stiffener	1	S-733	–	–	Replace
8	3112010	• • Stiffener, LH & RH	1	S-5101	–	F4-6	Replace
	3112010	• • Mounting Ring	1	2024-T42 Clad	0.050	–	Replace
	3118455	• • Cover Assy., Antenna	1	–	–	–	Replace

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT

Stinger Repair Index
Figure 2 (Sheet 2 of 2)

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone ventral fin and stinger assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

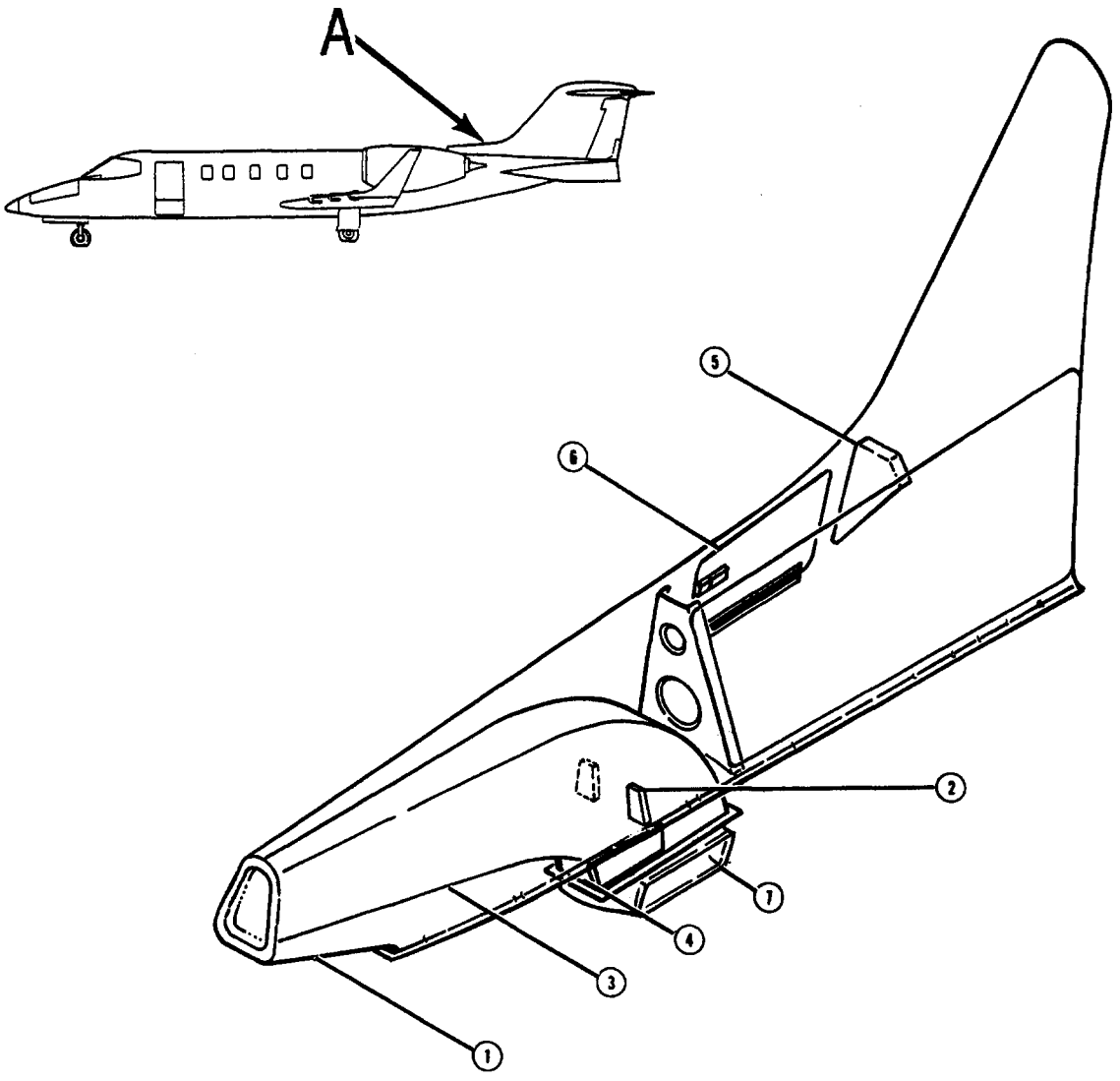
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

1. APPROVED REPAIRS

A. Refer to Chapter 51 for typical repairs.

TAILCONE DORSAL ASSEMBLY - STRUCTURAL IDENTIFICATION



(TYPICAL)

Detail A

5-32B

Tailcone Dorsal Assembly Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612020	• Tailcone Dorsal Instl.	1	–	–	–	–
	2512020	• Tailcone Dorsal Instl.	2	–	–	–	–
	2612020	• • Tailcone Dorsal Assy.	1	–	–	–	Replace
	2512020	• • Tailcone Dorsal Assy.	2	–	–	–	Replace
	2612020	• • • Dorsal Member	1	1	–	–	51-70-05
1	2512020	• • • Dorsal Member	2	1	–	–	51-70-05
2	2312020	• • • Gusset (2 ea.)	3	1	–	–	51-70-05
	2312020	• • • Tube	3	5052-0 2	0.050	–	51-70-05
3	2312020	• • • Duct	3	1	–	–	51-70-05
4	2312020	• • • Rub Block (2 ea.)	3	Phenolic 3	0.060	–	Replace
	2312020	• • • Retainer Assy.	3	–	–	–	Replace
	2312020	• • • • Plate	–	4130 Steel	0.090	–	Replace
5	2512020	• • • Stiffener	2	1	–	–	51-70-05
	2512022	• • • Bracket	2	2024-T42 Clad	0.040	F4-1	Replace
	2512022	• • Cradle Assy.	2	–	–	–	Replace
	2512022	• • • Cradle	2	2024-T42 Clad	0.040	F4-1	Replace
	2512022	• • • Support, Fwd	2	2024-T42 Clad	0.040	F4-1	Replace
	2512022	• • • Support, Aft	2	2024-T42 Clad	0.040	F4-1	Replace
	2512022	• • • Support	2	2024-T42 Clad	0.040	F4-1	Replace
	2512022	• • • Support, LH & RH	2	2024-T3 Clad	0.040	F4-1	Replace
	2512022	• • • Support Angle	2	2024-T42 Clad	0.040	F4-1	Replace
	2512022	• • • Angle, LH & RH	2	2024-T42 Clad	0.025	–	Replace
6	2512021	• • Door Assy., Dorsal Access	3	–	–	–	Replace
	2512021	• • • Skin	3	2024-T3 Clad	0.040	F4-1	51-70-02
	2512021	• • • Stiffener	4	2024-T3 Clad	0.025	F4-1	Replace
	2512021	• • • Hinge	3	MS35821-10A	–	F4-6	Replace
	2512021	• • • Spacer	3	2024-T3 Clad	0.063	F4-6	Replace
	2512021	• • • Stiffener (2 ea.)	5	S-554	–	F4-6	Replace
	2512021	• • • Pad	6	2024-T3 Clad	0.063	–	Replace
7	2519215	• • Dorsal Assy.	2	–	–	–	–
	2519215	• • • Duct Extension	2	1	–	–	51-70-05
	2519215	• • • Attach Strap	2	2024-T3 Clad	0.040	–	Replace
	6608066	• • • Duct	2	–	–	–	Replace
	2512023	• • Bulkhead Assy.	3	–	–	–	Replace
	2512023	• • • Bulkhead	3	1	–	–	51-70-05

Tailcone Dorsal Assembly Repair Index
Figure 1 (Sheet 2 of 3)

CODES	EFFECTIVITIES
1	35-001 THRU 35-391; 36-001 THRU 36-050
2	35-392 AND SUBSEQUENT; 36-051 AND SUBSEQUENT
3	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	31-001 THRU 31-101; 35-001 THRU 35-676; 36-001 THRU 36-063
5	31-102 AND SUBSEQUENT; 35-677 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
6	31-102 AND SUBSEQUENT

NOTES:

1. 5 Ply No. 181 Glass Cloth Per Mil-F-9084; Polyester Resin Mil-R-7575, Type I, Fabricate per Chapter 51
2. Tube 0.050 O.D. X 0.035 I.D.
3. Per Mil-P-15035
4. Made from 8001416 Sponge Foam

Tailcone Dorsal Assembly Repair Index
Figure 1 (Sheet 3 of 3)

TAILCONE DORSAL ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone dorsal assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

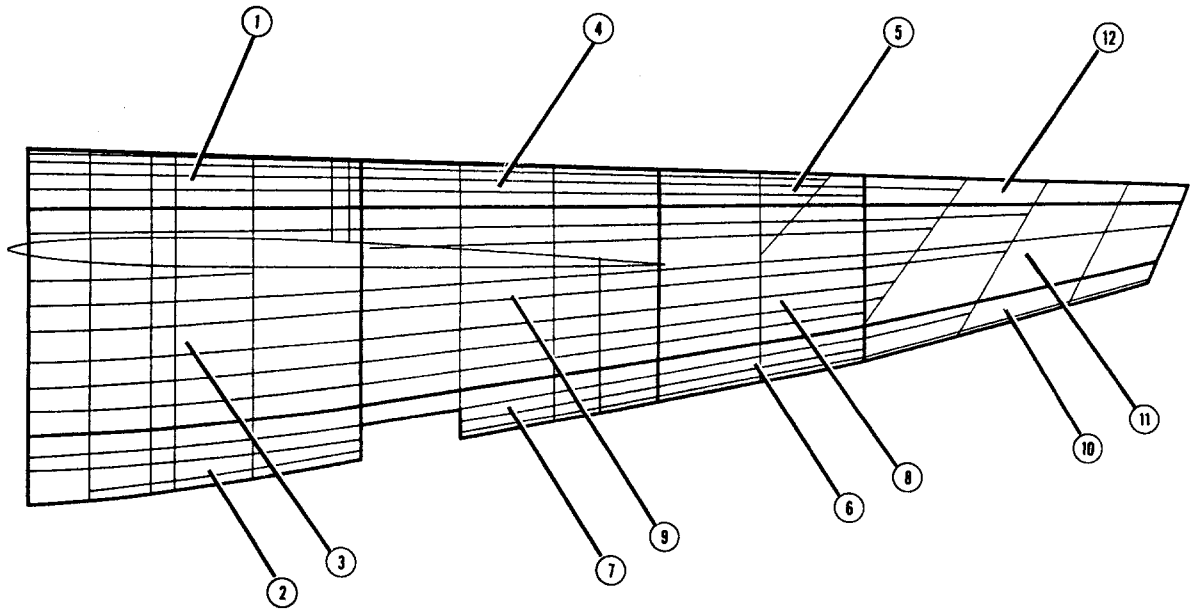
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

TAILCONE DORSAL ASSEMBLY - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

TAILCONE SKINS - STRUCTURAL IDENTIFICATION



(TYPICAL)

3-18D

Tailcone Skins Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612000	Tailcone Assembly	1	–	–	–	–
1	2612000	• Skin, Top	1	2024-T42 Clad	0.040	–	51-70-02
2	2612000	• Skin, Bottom	1	2024-T42 Clad	0.040	–	51-70-02
3	2612000	• Skin, LH & RH	1	2024-T42 Clad	0.040	–	51-70-02
4	2612000	• Skin, Top	2	2024-T42 Clad	0.040	–	51-70-02
5	2612000	• Skin, Top	2	2024-T42 Clad	0.040	–	51-70-02
	2612000	• Skin, Top	3	2024-T42 Clad	0.040	–	51-70-02
6	2512000	• Skin, Bottom	1	2024-T42 Clad	0.040	–	51-70-02
7	2512000	• Skin, Bottom	1	2024-T42 Clad	0.040	–	51-70-02
8	2512000	• Skin, LH & RH	2	2024-T42 Clad	0.040	–	51-70-02
	2612000	• Skin, LH & RH	3	2024-T42 Clad	0.040	–	51-70-02
9	2512000	• Skin, LH & RH	2	2024-T42 Clad	0.040	–	51-70-02
	2612000	• Skin, LH & RH	3	2024-T42 Clad	0.040	–	51-70-02
10	2512000	• Skin, Bottom	4	2024-T42 Clad	0.050	–	51-70-02
	2612000	• Skin, Bottom	5	2024-T42 Clad	0.050	–	51-70-02
11	2512000	• Skin, LH & RH	4	2024-T42 Clad	0.050	–	51-70-02
	2612000	• Skin, LH & RH	5	2024-T42 Clad	0.050	–	51-70-02
12	2512000	• Skin, Top	1	2024-T42 Clad	0.050	–	51-70-02

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	31-001 THRU 31-013; 35-001 THRU 35-657; 36-001 THRU 36-058
3	31-014 AND SUBSEQUENT; 35-658 AND SUBSEQUENT; 36-059 AND SUBSEQUENT
4	35-001 THRU 35-646; 36-001 THRU 36-058
5	31-001 AND SUBSEQUENT; 35-647 AND SUBSEQUENT; 36-059 AND SUBSEQUENT

Tailcone Skins Repair Index
Figure 1 (Sheet 2 of 2)

TAILCONE SKINS - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the tailcone structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

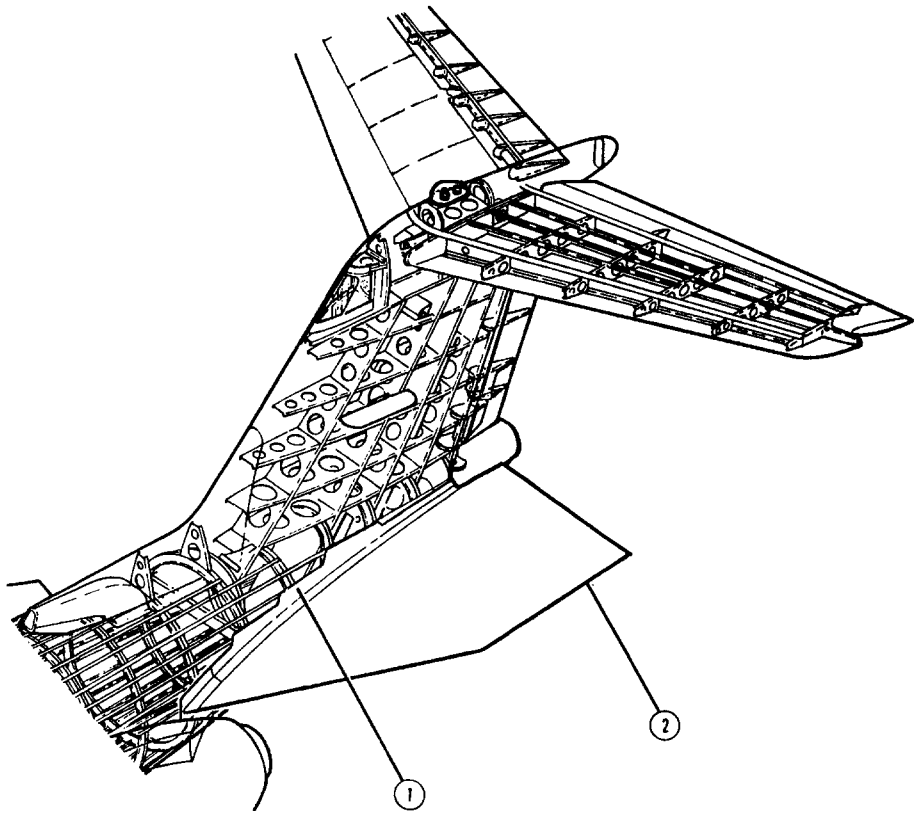
Allowable Material Thickness
Figure 101

TAILCONE SKINS - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for typical repairs.

DELTA FINS - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The delta fins provide aerodynamic support to the flight system. The delta fin installation consists of delta fin assemblies and fairing installations, and are located between FS 540.00 and FS 642.89 on the aft fuselage.



2-211A

Delta Fins Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3112100	Delta Fin Installation	1	–	–	–	–
1	3112101	• Fairing Instl., LH & RH	1	–	–	–	–
	3112101	• • Angle, Upper (2 ea.)	1	2024-T42 Clad	0.063	F4-6	Replace
	3112101	• • Angle, Lower (2 ea.)	1	2024-T42 Clad	0.063	F4-6	Replace
	3112101	• • Angle, Upper (2 ea.)	1	2024-T42 Clad	0.032	F4-6	Replace
	3112101	• • Angle, Lower (2 ea.)	1	2024-T42 Clad	0.032	F4-6	Replace
2	3112102	• Delta Fin Assy., LH & RH	1	–	–	–	Replace

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT

Delta Fins Repair Index
Figure 1 (Sheet 2 of 2)

DELTA FINS - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE:
- Maintenance to the delta fins is limited to replacement only, except as noted below. The following information pertains to the fairings, and attachment points of the delta fins.
- All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the delta fins is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

TEMPORARY REVISION NO. 53-2

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual.

NOTE: Temporary Revision 53-2 supersedes Temporary Revision 53-1 Dated Jul 1/99. The reason for Temporary Revision 53-2 is to eliminate duplication of temporary revision numbers. Temporary Revision 53-1, dated Jun 15/01, located in 53-28-00, is still good. Remove Temporary Revision 53-1 Dated Jul 1/99 from the manual.

FILING INSTRUCTIONS: Insert adjacent to 53-36-00, page 102, dated May 15/92, and retain until further notice.

REASON: To add procedures for loose rivets and Foreign Object Removal procedures.

INSTRUCTIONS: Added item B. Repair of Loose Rivets, and item C. Foreign Object Removal as follows:

DELTA FINS - REPAIR

1. APPROVED REPAIRS

A. Refer to Chapter 51 for typical repairs for the delta fins.

B. Repair of loose rivets.
   (1) Around delta fin periphery where three (3) rivets or less are loose, replace rivets installing replacement rivets (MS20426B3) using wet epoxy primer.
   (2) Around delta fin periphery where more than three (3) rivets in a row are loose, remove rivets, clean faying surfaces and treat with Dow Chemical Treatment No. 19, epoxy primer and fay seal joint with Proseal 890. Reinstall rivets (MS20426B3) and allow to room temperature cure.

C. Foreign object removal.
   (1) To remove foreign objects trapped in lower outboard edge, when internal access is not available, it is permissible to remove existing rivet common to skin and substructure joint near foreign object and spray with a light coat of HI-STRENGTH 90 (3M) spray adhesive. Allow to cure and reinstall rivet.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

ATP®
NOTE: Please see the
TEMPORARY
REVISION
that revises this page.

DELTA FINS - REPAIR

1. APPROVED REPAIRS

NOTE: Approved repairs to the delta fins is limited to replacement only, except those repairs as noted in Allowable Damage Limits (53-36-00).

A. Refer to Chapter 51 for typical repairs.

FUSELAGE FUEL CELL - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The fuselage fuel cell structure is located between frames 22 and 25 *on Model 31 Series Aircraft not equipped with extended rang fuel cells*, and between frames 20 and 25 *on Model 31 Series Aircraft equipped with extended rang fuel cells*. On *Model 35/35A Aircraft* the fuselage fuel cell structure is located between frames 22 and 25, and *on Model 36/36A Aircraft* between frames 18 and 25.
   B. The fuselage fuel cell structure is used to secure and house, multiple, rubber-bladder type cells for fuel storage. The fuel cell is a sealed structure made up of ribs, stringers, stiffeners, skins, cavity drains and cell dividers. Receptacles are installed in the upper portion of the fuel cell area to mate with hangers on the rubber bladders. The cavity drains are installed as an aid to eliminate any moisture buildup which may occur between the fuel cells and surrounding structure.
   C. For additional information pertaining to the fuselage fuel cell, refer to the basic Learjet Maintenance Manual, Chapter 28.

FUSELAGE FUEL CELL - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage fuel cell structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

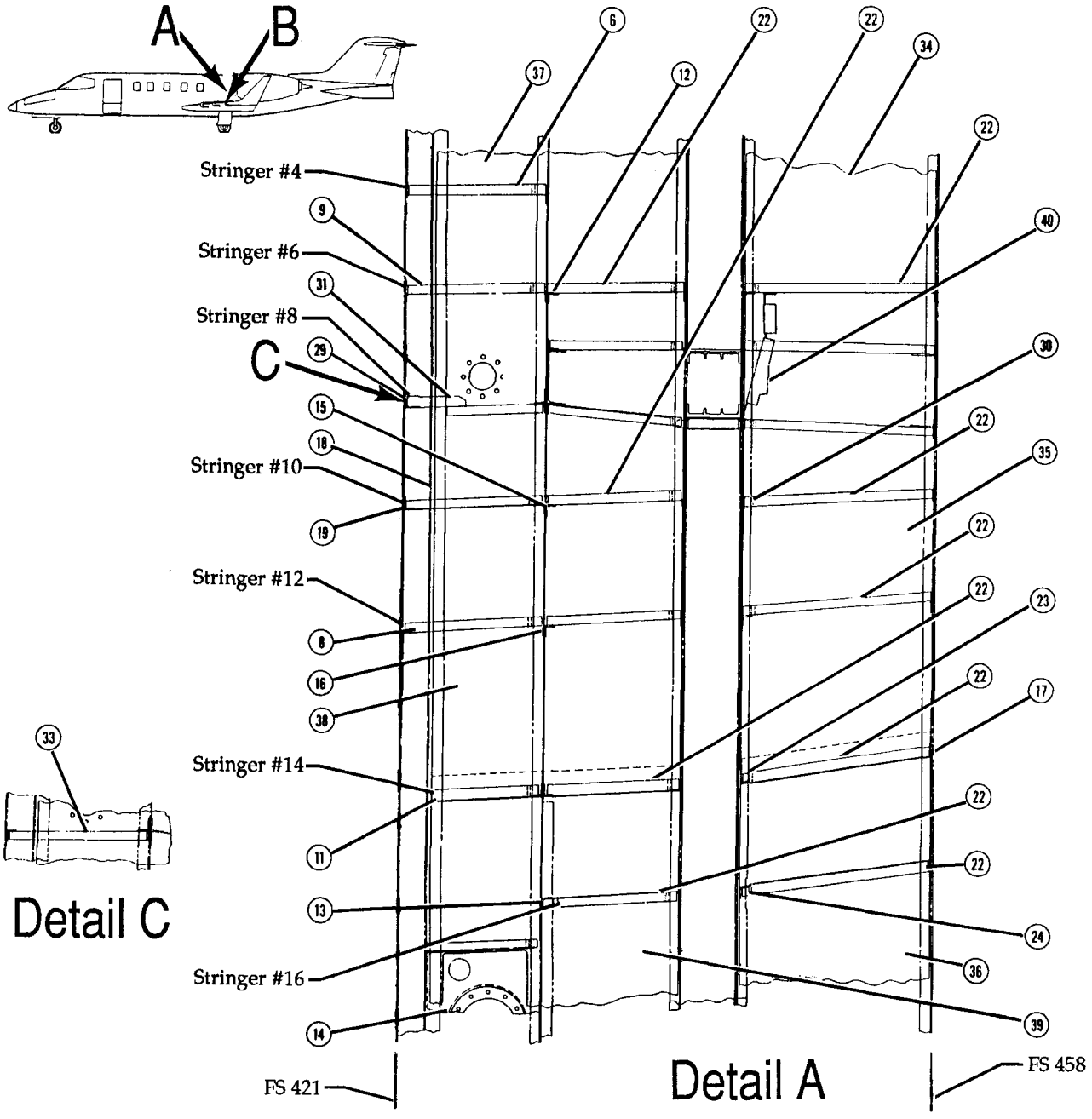
Allowable Material Thickness
Figure 101

FUSELAGE FUEL CELL - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

FUSELAGE FUEL CELL STRUCTURE - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. On *Model 31/31A Series Aircraft not equipped with extended range*, the fuselage fuel cell structure is located in between frame 22 and frame 25.
      On *Model 31/31A Series Aircraft equipped with extended range*, the fuselage fuel cell structure is located between frame 22 and frame 25, and the forward fuel cell structure is located between frame 20 and frame 22.
      On *Model 35/35A Series Aircraft* the fuselage fuel cell structure is located between frame 22 and frame 25.
      On *Model 36/36A Series Aircraft* the fuselage fuel cell structure is located between frame 22 and frame 25, and the forward fuel cell structure is located between frame 18 and frame 22.
   B. The fuel cell and forward fuel cell structure consist of intercostals, support assemblies, webs, stiffeners, center, lower and upper cell dividers, with different configurations of components depending upon aircraft model and fuel systems incorporated.

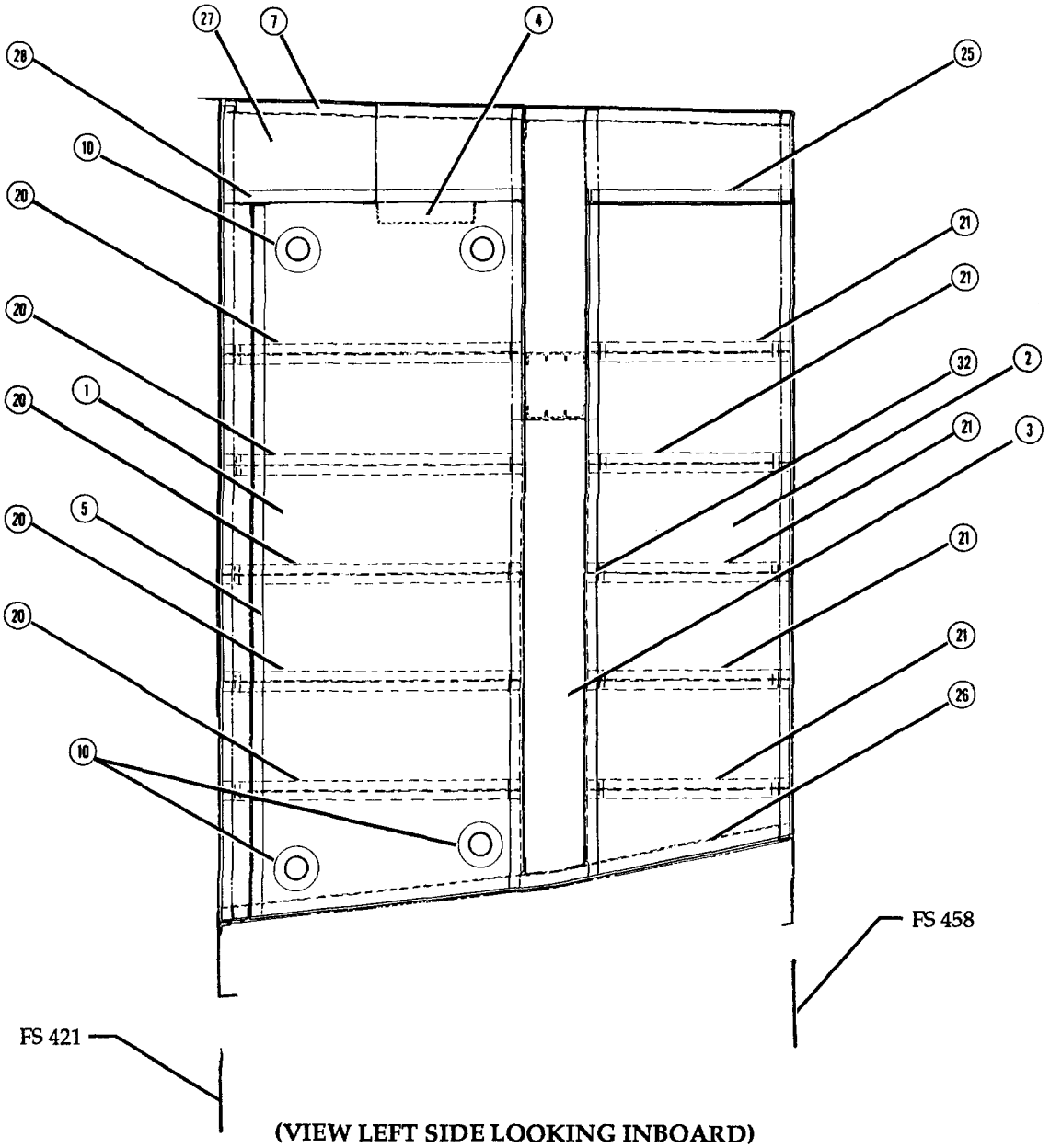


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(TYPICAL)

2-149C-1

Fuselage Fuel Cell Structure Repair Index - Aft Fuel Cell
Figure 1 (Sheet 1 of 4)



(VIEW LEFT SIDE LOOKING INBOARD)

(FUEL CELL DIVIDER, BL 0.00)

(TYPICAL)

Detail B

Fuselage Fuel Cell Structure Repair Index - Aft Fuel Cell
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2612410	Fuselage Fuel Cell Structure Instl.	1	–	–	–	–
1	2612410	• Skin, Fwd (2 ea.)	1	2024-T3 Clad	0.032	–	51-70-02
2	2612410	• Skin, Aft (2 ea.)	2	2024-T3 Clad	0.032	–	51-70-02
	2612410	• Skin, LH Aft	3	2024-T3 Clad	0.032	–	51-70-02
	2612410	• Skin, RH Aft	3	2024-T3 Clad	0.032	–	51-70-02
3	2612410	• Skin, Splice (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
4	2312037	• Support Bracket, Fuel Probe	1	6061-0	0.063	–	Replace
5	2412411	• Angle (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
6	2412411	• Stiffener, LH & RH	1	2024-T42 Clad	0.050	–	Replace
7	2412411	• Seal Angle (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
8	2412411	• Stiffener, LH & RH	1	2024-T42 Clad	0.050	–	Replace
9	2412411	• Stiffener, LH & RH	1	2024-T42 Clad	0.050	–	Replace
10	2412411	• Doubler (9 ea.)	1	2024-T3 Clad	0.063	–	Replace
11	2412411	• Stiffener, LH & RH	1	2024-T42 Clad	0.050	–	Replace
12	2412411	• Angle (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
13	2412411	• Angle (6 ea.)	1	S-571	0.050	–	Replace
	2412411	• Doubler	1	2024-T3 Clad	0.125	–	Replace
14	2412415	• Plate	1	2024-T42 Clad	0.190	–	Replace
15	2512426	• Angle, LH & RH	1	S-571	–	–	Replace
16	2512426	• Angle (2 ea.)	1	S-571	–	–	Replace
17	2512426	• Angle (2 ea.)	1	S-571	–	–	Replace
18	2512427	• Stiffener, LH & RH	1	2024-T42 Clad	0.050	–	Replace
19	2512427	• Angle	1	2024-T42 Clad	0.050	–	Replace
20	2612412	• Stiffener (5 ea.)	1	2024-T42 Clad	0.032	–	Replace
21	2612412	• Stiffener (5 ea.)	1	2024-T42 Clad	0.032	–	Replace
22	2612412	• Stiffener, LH & RH (10 ea.)	1	2024-T42 Clad	0.050	–	Replace
23	2612412	• Angle (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
24	2612412	• Angle (4 ea.)	1	S-571	–	–	Replace
25	2612412	• Angle, LH & RH	1	2024-T3 Clad	0.032	–	Replace
26	2612412	• Cell Divider	1	2024-T42 Clad	0.032	–	Replace
27	2612412	• Cell Divider	1	2024-T42 Clad	0.032	–	Replace
28	2612412	• Angle, LH & RH	1	2024-T3 Clad	0.032	–	Replace
29	2612412	• Angle (4 ea.)	1	2024-T42 Clad	0.050	–	Replace
30	2612412	• Angle, LH & RH (2 ea.)	1	S-571	–	–	Replace
31	2612412	• Angle, LH & RH (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2612412	• Angle, LH & RH	4	2024-T42 Clad	0.050	–	Replace
	2612412	• Angle, LH & RH	5	2024-T42 Clad	0.050	–	Replace
32	2612412	• Angle, LH & RH	1	2024-T42 Clad	0.050	–	Replace
33	2612412	• Intercostal, LH & RH	1	2024-T42 Clad	0.050	–	Replace
34	2612412	• Skin, LH & RH Top Aft	1	2024-T42 Clad	0.025	–	51-70-02
	2612412	• Skin, RH Center Aft	2	2024-T42 Clad	0.025	–	51-70-02
	2612412	• Skin, RH Center Aft	3	2024-T42 Clad	0.025	–	51-70-02
35	2612412	• Skin, Center Aft, LH	1	2024-T42 Clad	0.025	–	51-70-02

Fuselage Fuel Cell Structure Repair Index - Aft Fuel Cell
Figure 1 (Sheet 3 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
36	2612412	• Skin, Lower Aft, LH	1	2024-T42 Clad	0.025	–	51-70-02
	2612412	• Skin, Lower Aft, RH	2	2024-T42 Clad	0.025	–	51-70-02
	2612412	• Skin, Lower Aft, RH	3	2024-T42 Clad	0.025	–	51-70-02
37	2612412	• Skin, LH & RH Top Fwd	1	2024-T42 Clad	0.025	–	51-70-02
38	2612412	• Skin, LH & RH Center Fwd	1	2024-T42 Clad	0.025	–	51-70-02
39	2612412	• Skin, LH & RH Lower Fwd	1	2024-T42 Clad	0.025	–	51-70-02
	2412411	• Doubler (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	2612411	• Shroud Instl.	1	–	–	–	–
40	2612413	• • Shroud, LH & RH Aft Assy.	1	–	–	–	Replace
	2612413	• • • Shroud	1	2024-T42 Clad	0.032	–	Replace
	2612413	• • Shroud, LH & RH Fwd	1	2024-T42 Clad	0.032	–	Replace
	2612413	• • Shroud, LH & RH	1	2024-T42 Clad	0.032	–	Replace
	2612413	• • Strap (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2612413	• • Angle, LH & RH Upper	1	2024-T42 Clad	0.032	–	Replace
	2612413	• • Angle, LH & RH Lower	1	2024-T42 Clad	0.032	–	Replace
	2612413	• • Angle, LH & RH	1	2024-T3 Clad	0.032	–	Replace
	2612413	• • Clip (4 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2612413	• • Angle (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2612430	• Hanger Instl., Fuel Cell	1	–	–	–	–
	2316039	• Fuel Drain Instl.	1	–	–	–	–
	2316039	• • Drain Fitting (2 ea.)	1	[1]	–	–	Replace
	2316039	• • Tube Assy. (2 ea.)	1	–	–	–	Replace
	2316039	• • • Tube	1	[2]	–	–	Replace

CODES **EFFECTIVITIES**

1	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT AND 31-001 AND SUBSEQUENT NOT EQUIPPED WITH SINGLE-POINT PRESSURE REFUELING
3	31-010 AND SUBSEQUENT EQUIIPPED WITH SINGLE-POINT PRESSURE REFUELING
4	35-001 THRU 35-539, 35-589 THRU 35-595; 36-001 THRU 36-053
5	35-540 THRU 35-588, 35-596 AND SUBSEQUENT; 36-054 AND SUBSEQUENT

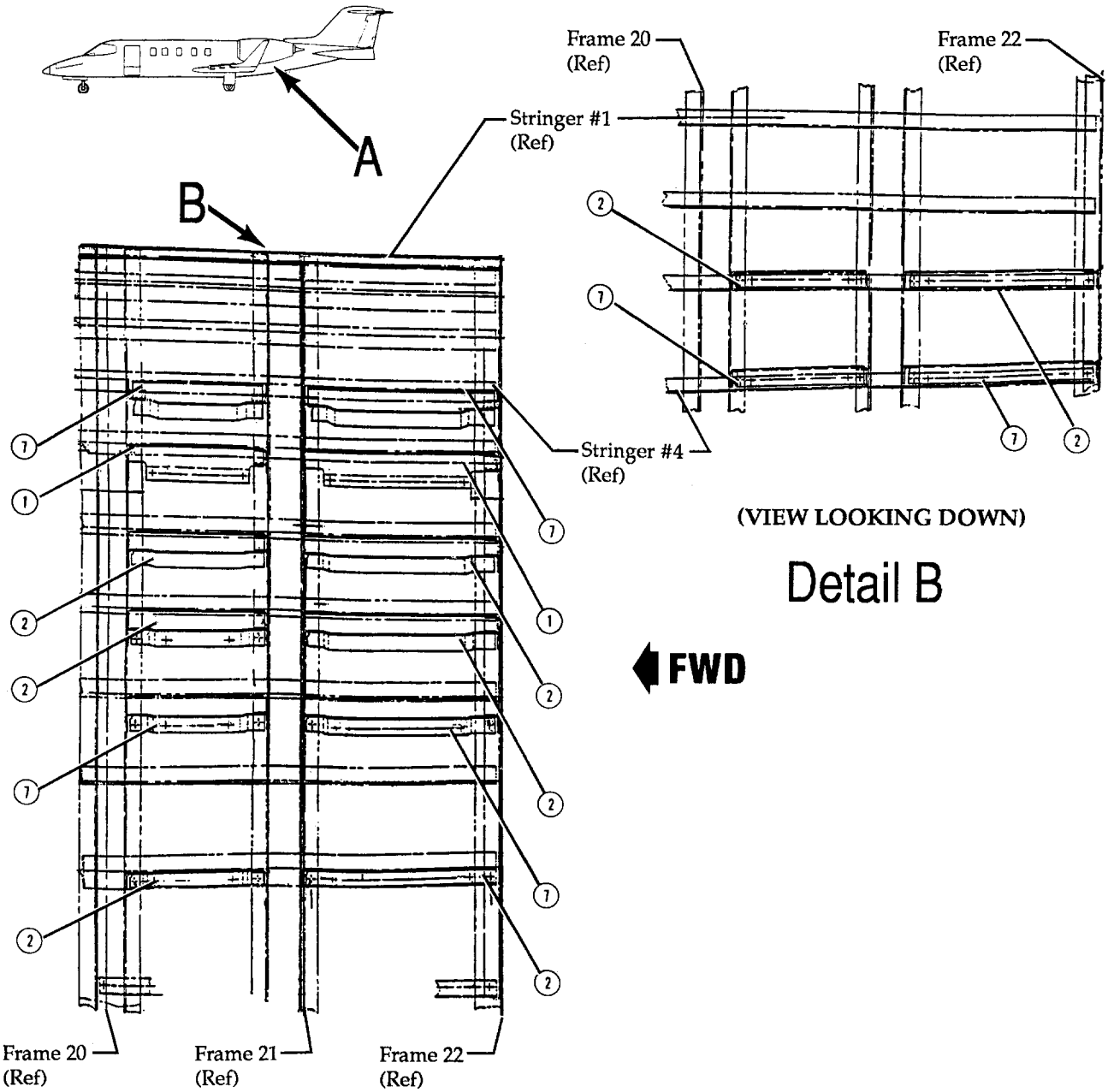
NOTES:

[1] Fabricated from AN832-4D fitting

[2] Fabricated from 5052-0, 0.250 O.D. X 0.035 I.D. aluminum tubing

Fuselage Fuel Cell Structure Repair Index - Aft Fuel Cell
Figure 1 (Sheet 4 of 4)

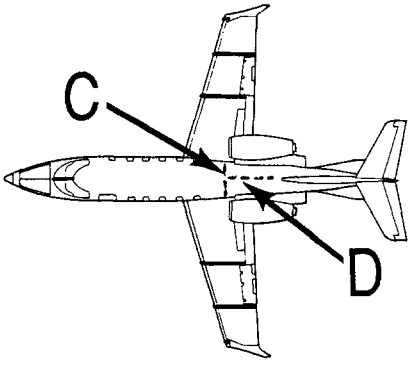
FUSELAGE FUEL CELL STRUCTURE - STRUCTURAL IDENTIFICATION

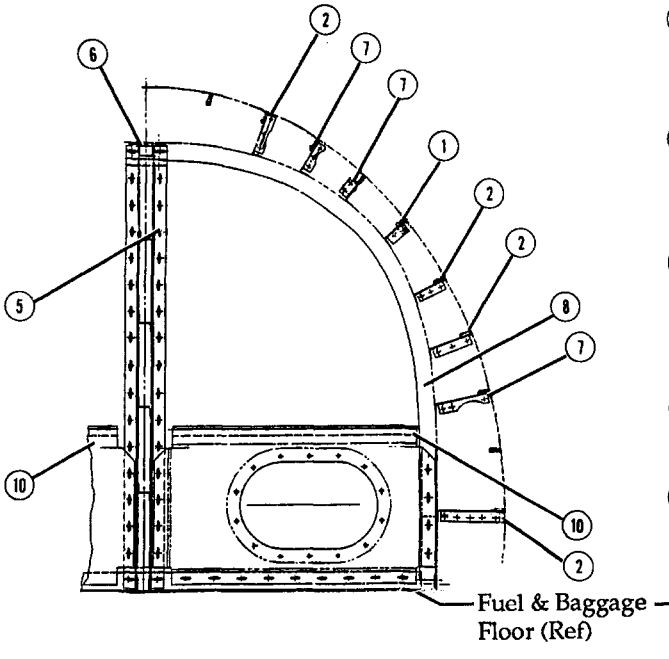


Repro

Fuselage Fuel Cell Structure Repair Index - Fwd Fuel Cell
Figure 2 (Sheet 1 of 3)

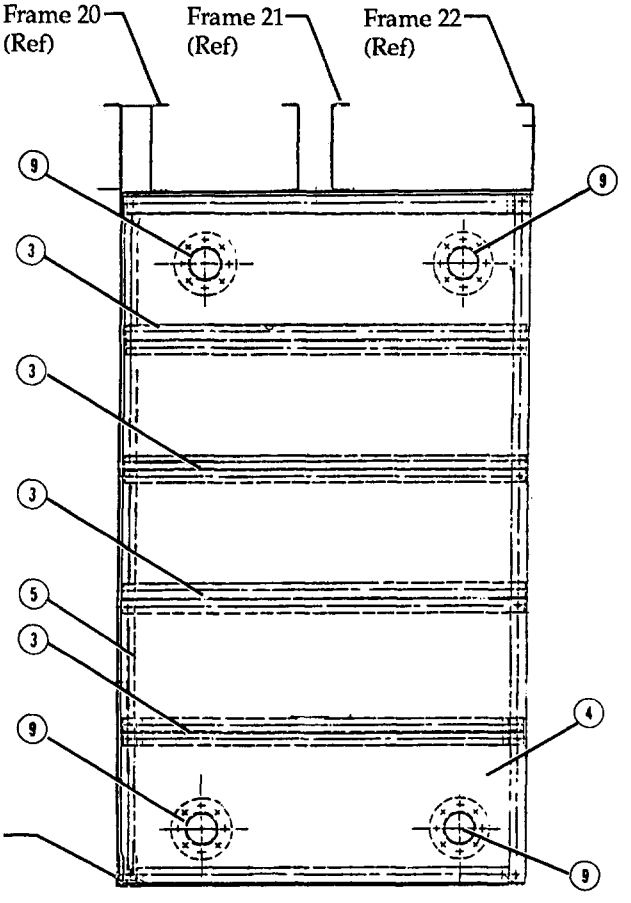
FUSELAGE FUEL CELL STRUCTURE - STRUCTURAL IDENTIFICATION





(VIEW LOOKING FWD, RH SIDE FRAME 20)

Detail C



(VIEW LEFT SIDE LOOKING INBOARD)

(FUEL CELL DIVIDER, BL 0.00)

Detail D

(TYPICAL)

Repro

Fuselage Fuel Cell Structure Repair Index - Fwd Fuel Cell
Figure 2 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	3111410	Fuselage Fuel Cell Structure Instl., Fwd Fuel Cell	1	–	–	–	–
1	2511411	• Intercostal, LH & RH (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Angle (10 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Filler (6 ea.)	1	2024-T3 Clad	0.080	–	Replace
2	2511411	• Intercostal, LH & RH (14 ea.)	1	2024-T42 Clad	0.032	–	Replace
3	2511411	• Stiffener (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
4	2511411	• Web (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
5	2511411	• Cell Divider	1	S-555	–	–	Replace
6	2511411	• Cell Divider, Upper	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Cell Divider, Lower	1	S-555	–	–	Replace
	2511411	• Angle, LH & RH (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
7	2511411	• Intercostal (6 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Angle, LH & RH (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2511411	• Angle (8 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2511411	• Angle, LH & RH (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Filler (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
8	2511412	• Inner Skin, LH & RH	1	[1]	–	–	Replace
9	2511413	• Fitting (4 ea.)	1	2024-T4 Clad	2.750	–	Replace
10	2511414	• Support Assy., LH & RH	1	–	–	–	Replace
	2511414	• • Support Pan	1	2024-T42 Clad	0.040	–	Replace
	2511414	• • Rub Stick	1	[2]	–	–	Replace
	2511415	• Shroud Instl., LH & RH	1	–	–	–	Replace
	2511415	• • Shroud, LH	1	[1]	–	–	Replace
	2511415	• • Shroud, Center	1	2024-T3 Clad	0.025	–	Replace
	2511415	• • Shroud, RH	1	2024-T3 Clad	0.025	–	Replace

CODES **EFFECTIVITIES**

1 31-001 AND SUBSEQUENT EQUIPPED WITH EXTENDED RANGE FUEL SYSTEM

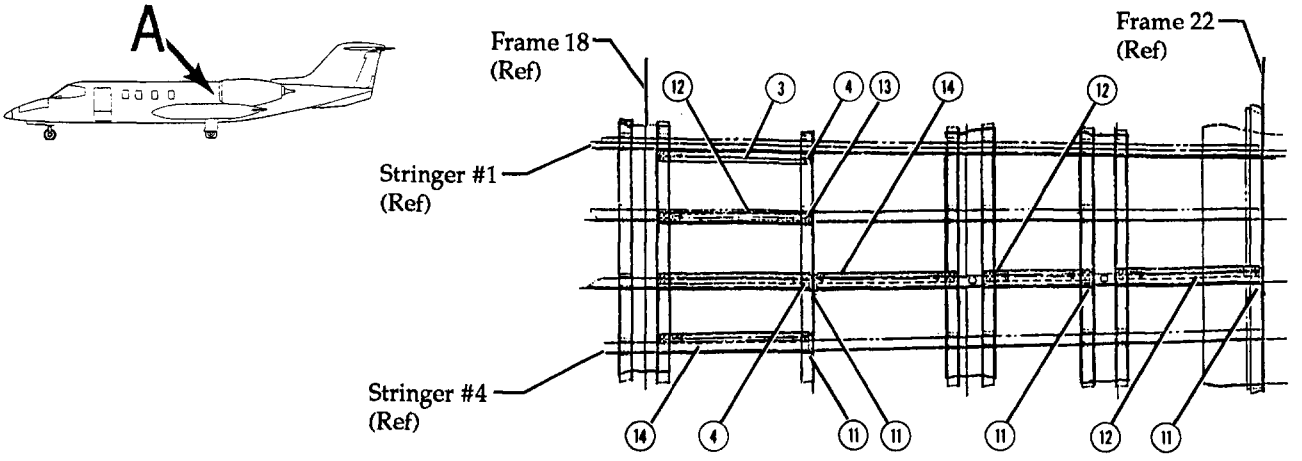
NOTES:

[1] No. 181 Glass Cloth Per MIL-F-9084, Polyester per MIL-R-7575, Type II.

[2] Fabricated from 0.062 Neoprene, 40-50 Duro

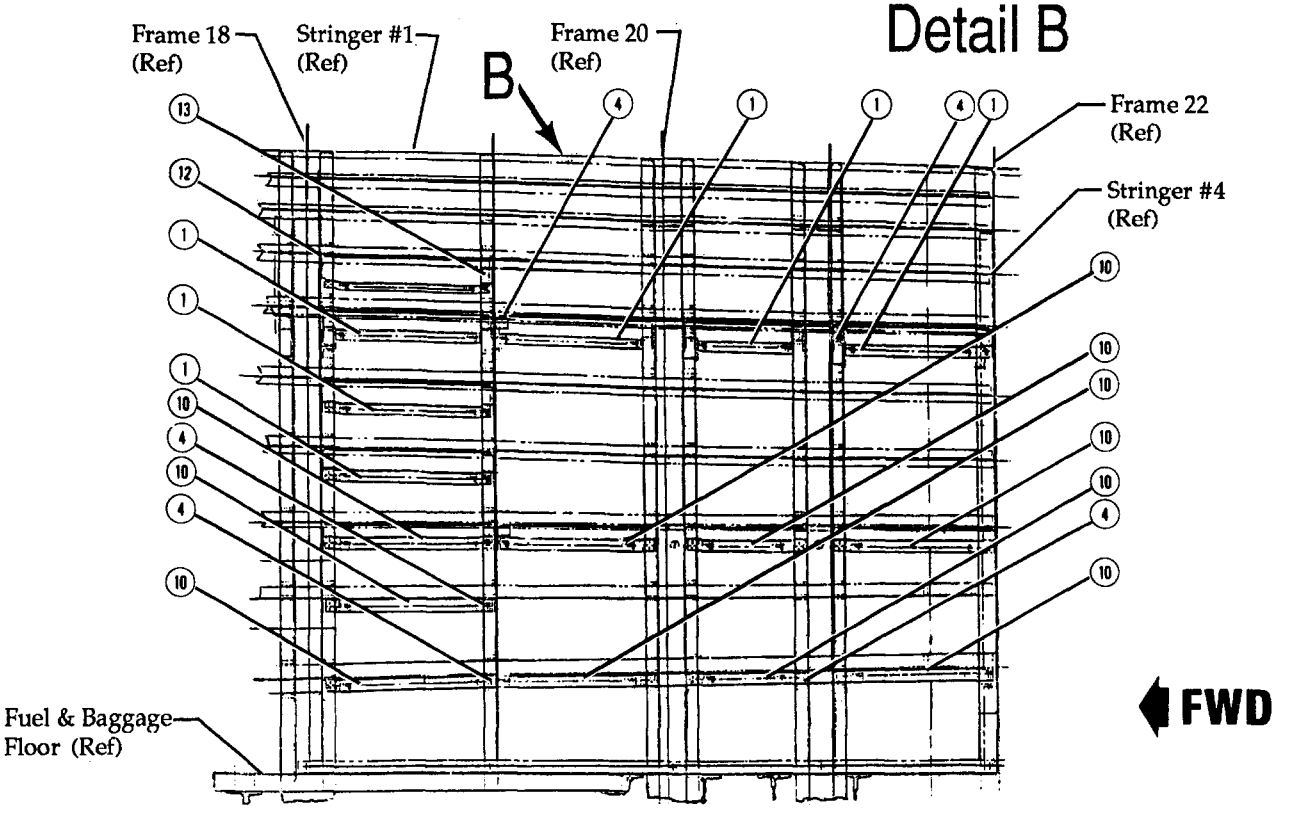
Fuselage Fuel Cell Structure Repair Index - Fwd Fuel Cell
Figure 2 (Sheet 3 of 3)

FUSELAGE FUEL CELL STRUCTURE - STRUCTURAL IDENTIFICATION



(VIEW LOOKING DOWN)

Detail B



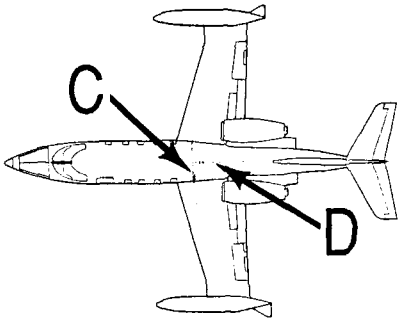
(VIEW LEFT SIDE LOOKING INBOARD)

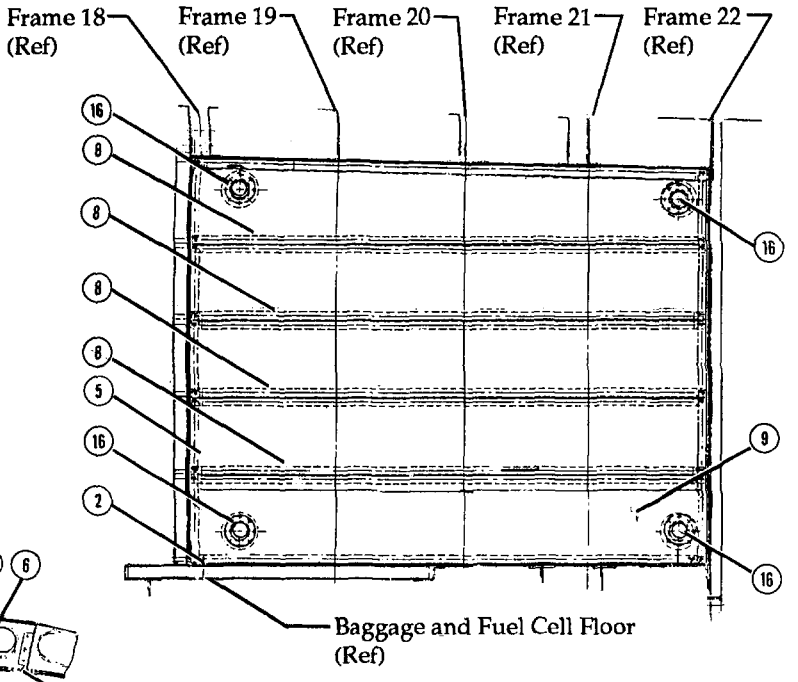
Detail A

Repro

Fuselage Fuel Cell Structure Repair Index - Fwd Fuel Cell
Figure 3 (Sheet 1 of 3)

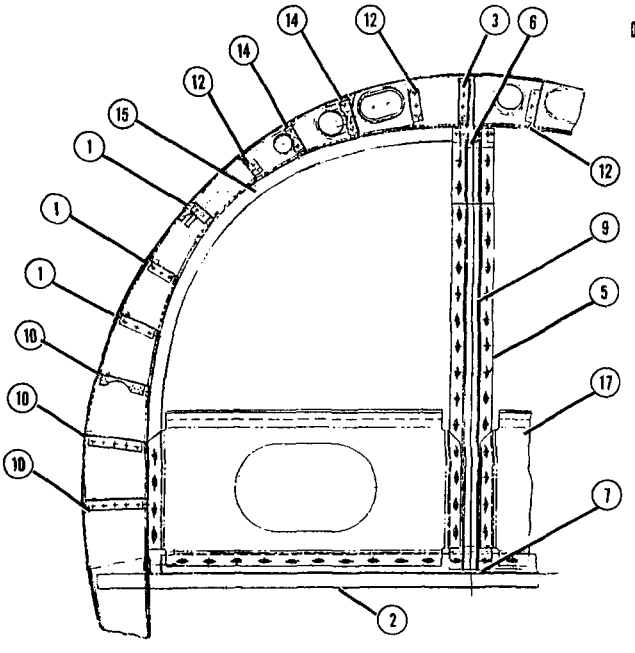
FUSELAGE FUEL CELL STRUCTURE - STRUCTURAL IDENTIFICATION





(FUEL CELL DIVIDER, BL 0.00)

Detail D



(VIEW LOOKING FWD, LH SIDE, FRAME 18)

Detail C

Repro

Fuselage Fuel Cell Structure Repair Index - Fwd Fuel Cell
Figure 3 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511410	Fuselage Fuel Cell Structure Instl., Fwd Fuel Cell	1	–	–	–	–
1	2511411	• Intercostal, LH & RH (6 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Angle, LH & RH	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Angle (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
2	2511411	• Angle	1	S-549	–	–	Replace
3	2511411	• Intercostal	1	2024-T42 Clad	0.032	–	Replace
4	2511411	• Angle (23 ea.)	1	2024-T3 Clad	0.032	–	Replace
5	2511411	• Cell Divider	1	S-555	–	–	Replace
6	2511411	• Cell Divider, Upper	1	2024-T42 Clad	0.032	–	Replace
7	2511411	• Cell Divider, Lower	1	S-555	–	–	Replace
8	2511411	• Stiffener (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Filler (12 ea.)	1	2024-T3 Clad	0.032	–	Replace
9	2511411	• Web (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Angle, LH & RH	1	2024-T42 Clad	0.032	–	Replace
10	2511411	• Intercostal, LH & RH (9 ea.)	1	2024-T42 Clad	0.032	–	Replace
11	2511411	• Angle, LH & RH (4 ea.)	1	2024-T3 Clad	0.032	–	Replace
12	2511411	• Intercostal, LH & RH (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
13	2511411	• Angle (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2511411	• Angle, LH & RH	1	2024-T42 Clad	0.032	–	Replace
14	2511411	• Intercostal, LH & RH (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
15	2511412	• Inner Skin, LH & RH	1	▷1◁	–	–	Replace
16	2511413	• Fitting (4 ea.)	1	2024-T4 Clad	2.750	–	Replace
17	2511414	• Support Assy., LH & RH	1	–	–	–	Replace
	2511414	• • Support Pan	1	2024-T42 Clad	0.040	–	Replace
	2511414	• • Rub Stick	1	▷2◁	–	–	Replace
	2511415	• Shroud Instl., LH & RH	1	–	–	–	Replace
	2511415	• • Shroud, LH	1	▷1◁	–	–	Replace
	2511415	• • Shroud, Center	1	2024-T3 Clad	0.025	–	Replace
	2511415	• • Shroud, RH	1	2024-T3 Clad	0.025	–	Replace

CODES **EFFECTIVITIES**

1 36-001 AND SUBSEQUENT

NOTES:

▷1◁ No. 181 Glass Cloth Per MIL-F-9084, Polyester per MIL-R-7575, Type II.

▷2◁ Fabricated from 0.062 Neoprene, 40-50 Duro

Fuselage Fuel Cell Structure Repair Index - Fwd Fuel Cell
Figure 3 (Sheet 3 of 3)

FUSELAGE FUEL CELL STRUCTURE - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the fuselage fuel cell structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

FUSELAGE FUEL CELL STRUCTURE - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.

KEELBEAM ASSEMBLIES - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The forward, underwing and aft keelbeam assemblies, located along the bottom side of the aircraft, provide a major structural component used to complete the fuselage structure when the wing assembly is installed. The keelbeams also provide housings for fuel lines, hydraulic lines and control cables. Fuselage frames are interrupted at the keel and are continued through the keel by webs. The floorboards are secured on top of the forward keelbeam and become a part of the aircraft structure. Access covers, located along the bottom side of the keelbeams, form a smooth aerodynamic surface on the bottom side of the aircraft. Refer to Chapter 51 for forward, underwing and aft keelbeam station locations.

KEELBEAM ASSEMBLIES - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.
   (3) Cracks in the keelbeam structure are not allowed.

C. Deformation
   (1) Deformation of any kind to the keelbeam structure is not allowed.
   (2) Slight deformation of outboard bulkheads is permissible if such deformation does not cause interference with adjacent structure or plumbing and does not prohibit the installation of the access covers.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings must be replaced if cracked or if fitting hole tolerance exceeds the allowable limits. (Refer to Chapter 51.)
I. Bolts
   (1) Keelbeam attach bolts must be replaced if fatique cracks are evident, bolt is bent or there is thread damage, or if the minimum allowable diameter is exceeded. (Refer to Chapter 51.)

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

KEELBEAM ASSEMBLIES - REPAIR

1. APPROVED REPAIRS

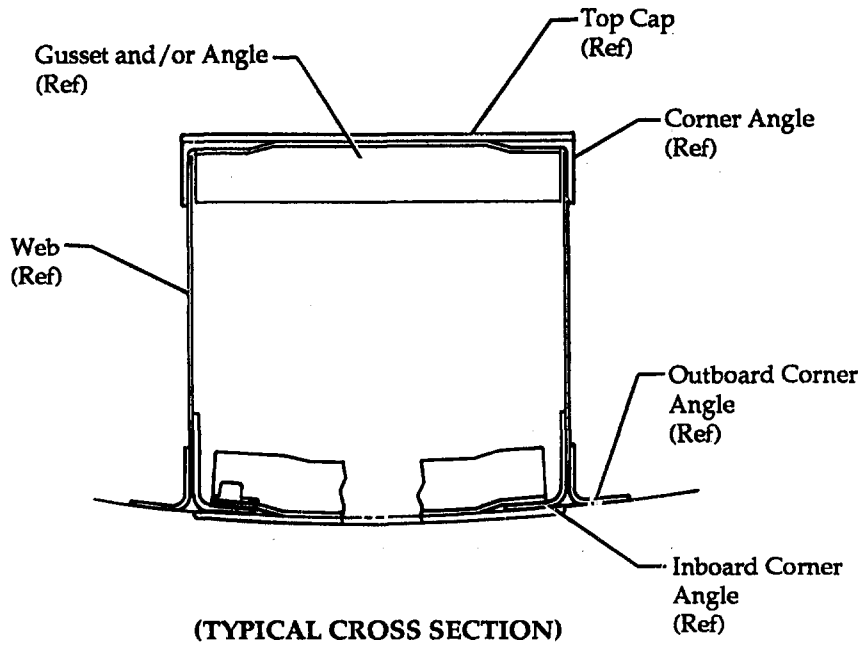
A. Refer to Chapter 51 for typical repairs.
B. Repairs provided in this section shall be used in lieu of the typical repairs in Chapter 51, when specified in the repair Figure Number Column of the Repair Indexes.
C. Refer to Chapter 51 for allowable wear and repair data for keelbeam assembly fittings.
D. **Condition**
   (1) Damage to upper and lower corner angles extends from fastener location outward to edge of corner angle.
   (2) Damage to upper and lower corner angle extends from fastener location inward to bend radius of angle.
E. **Repair** (Condition 1, Detail A)
   (1) If damage is in the form of a crack, between fastener locations, stop drill crack with a No. 30 hole.
   (2) Clean out crack and smooth edges.
   (3) Apply protective treatment to angle.
   (4) Fabricate repair angle from same gage and type material. Length of repair angle to be 5 fasteners either side of damaged area.
   (5) Drill out existing fasteners. If necessary, drill out to next oversize.
   (6) Apply protective treatment to area and repair angle. Install repair angle.
F. **Repair** (Condition 2, Detail B)
   (1) Cutout damaged area from corner angle. Cutout must be three to five fasteners either side of damaged area.

   CAUTION: • **IF CUTOUT EXTENDS INTO AREA WHERE A GUSSET IS INSTALLED AND THREE TO FIVE FASTENERS CANNOT BE PICKED UP, CUTOUT MUST EXTEND TO WHERE ADEQUATE FASTENERS CAN BE PICKED UP TO COMPLETE THE REPAIRS.**

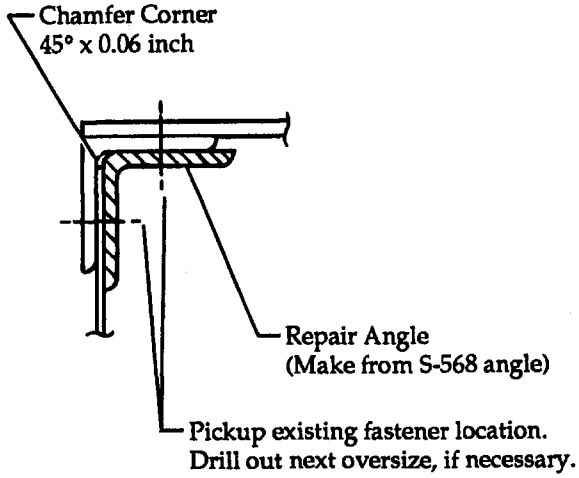
   • **WHERE AN ANGLE IS ENCOUNTERED, IT IS PERMISSIBLE TO LOWER THE ANGLE BY THE MATERIAL THICKNESS OF THE REPAIR ANGLE AND INSTALL A SPACER BETWEEN THE ANGLE AND THE TOP CAP.**

   (2) Fabricate filler, same length as cutout, from same gage and type material of corner angle.
   (3) Fabricate two repair angles from same gage and type material as corner angle. Length of repair angles shall be three to five fasteners either side of end of cutout.
   (4) Drill out existing fasteners. If necessary, drill out to next oversize.
   (5) Apply protective treatment and install filler and repair angle.

KEELBEAM ASSEMBLIES - REPAIR

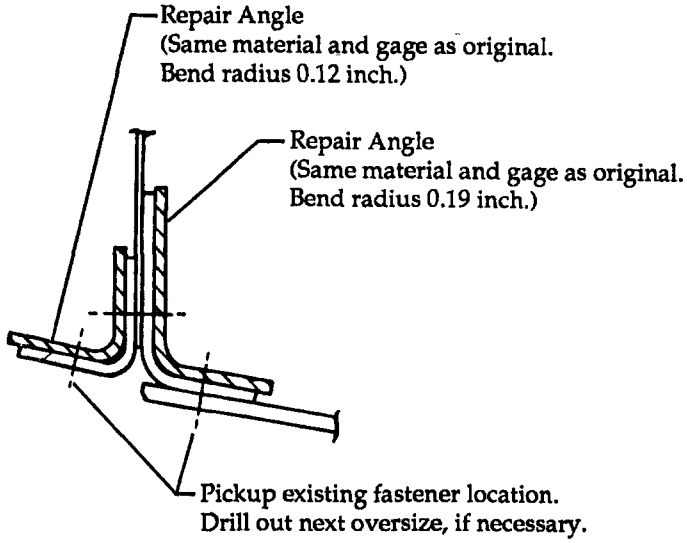


(TYPICAL CROSS SECTION)



(UPPER CORNER OF KEELBEAM)

Detail A



(LOWER CORNER OF KEELBEAM)

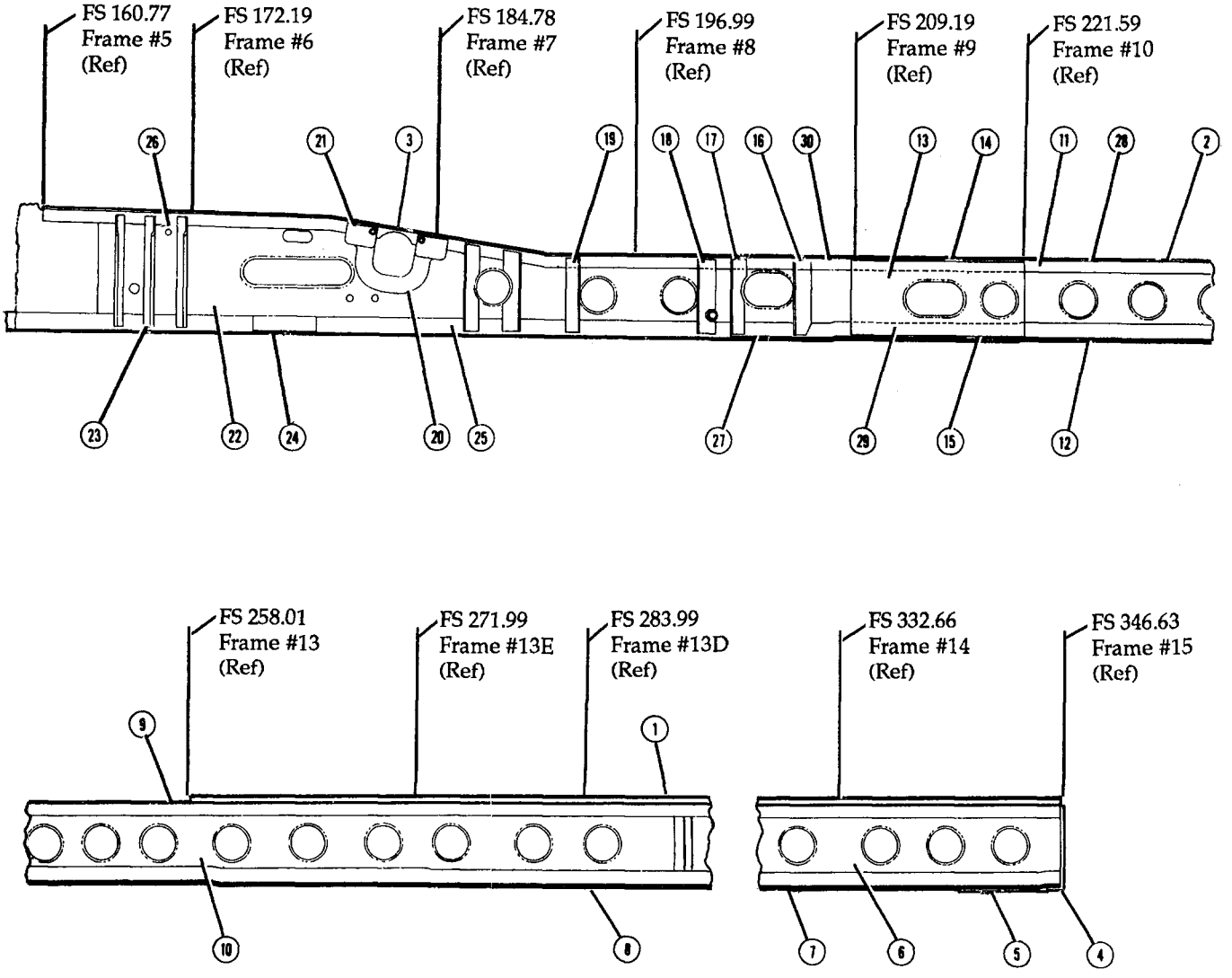
Detail B

(TYPICAL)

2-155A

Keelbeam Assemblies Repair
Figure 201

FORWARD KEELBEAM - STRUCTURAL IDENTIFICATION



2-150R

Forward Keelbeam Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2611240	• Keelbeam Assy, Forward, LH (W/24-Inch Door)	1	–	–	–	–
	2611240	• Keelbeam Assy, Forward, LH (W/36-Inch Door)	1	–	–	–	–
	2611240	• Keelbeam Assy, Forward, RH	1	–	–	–	–
	2611250	• Keelbeam Assy, Forward, LH (W/24-Inch Door)	2	–	–	–	–
	2611250	• Keelbeam Assy, Forward, LH (W/36-Inch Door)	2	–	–	–	–
	2611250	• Keelbeam Assy, Forward, RH	2	–	–	–	–
1	2611242	• • Seat Rail	3	S-537	–	–	Replace
	2611512	• • Seat Rail	4	S-537	–	–	Replace
2	2311240	• • Seat Rail	3	S-551	–	–	Replace
	2311512	• • Seat Rail	4	S-551	–	–	Replace
3	2311240	• • Tee (2 ea.)	5	S-551	–	–	Replace
4	2311241	• • Fitting	5	–	–	–	Replace
5	2311240	• • Spacer	5	2024-T4 Clad	0.310	–	Replace
6	2511240	• • Web	5	2024-T3 Clad	0.032	–	Replace
7	2611241	• • Stringer	5	2024-T42 Clad	0.040	–	Replace
	2611241	• • Angle,	5	2024-T42 Clad	0.063	–	Replace
8	2511240	• • Splice	5	2024-T3 Clad	0.040	–	Replace
9	2311240	• • Doubler	5	2024-T42 Clad	0.063	–	Replace
10	2611241	• • Web	5	2024-T42 Clad	0.032	–	Replace
11	2311240	• • Doubler	5	2024-T42 Clad	0.063	–	Replace
12	2611241	• • Angle	5	2024-T3 Clad	0.063	–	Replace
13	2611241	• • Doubler	6	2024-T3 Clad	0.032	–	Replace
	2611241	• • Doubler	7	2024-T42 Clad	0.032	–	Replace
14	2611241	• • Spacer (2 ea.)	5	2024-T3 Clad	0.100	–	Replace
	2611241	• • Spacer (2 ea.)	5	2024-T3 Clad	0.080	–	Replace
15	2611241	• • Spacer (LH only)	5	2024-T3 Clad	0.020	–	Replace
	2611241	• • Spacer (RH only)	5	2024-T3 Clad	0.040	–	Replace
16	2611241	• • Angle	5	2024-T42 Clad	0.125	–	Replace
17	2611241	• • Angle, Outer	5	2024-T42 Clad	0.063	–	Replace
	2611241	• • Angle, Inner	5	2024-T42 Clad	0.063	–	Replace
	2611241	• • Spacer	5	2024-T3 Clad	0.080	–	Replace
18	2611241	• • Angle, Outer	5	2024-T42 Clad	0.063	–	Replace
	2611241	• • Angle, Inner	5	2024-T42 Clad	0.063	–	Replace
	2611241	• • Spacer	5	2024-T3 Clad	0.040	–	Replace
19	2611241	• • Angle (3 ea.)	5	2024-T42 Clad	0.063	–	Replace
	2611241	• • Spacer (3 ea.)	5	2024-T3 Clad	0.040	–	Replace
	2611241	• • Doubler	5	2024-T3 Clad	0.063	–	Replace
20	2311240	• • Doubler	8	2024-T3 Clad	0.080	–	Replace
	2311240	• • Doubler	9	2024-T3 Clad	0.080	–	Replace
21	2311240	• • Angle (6 ea.)	5	S-549	–	–	Replace
22	2311240	• • Stiffener (RH only)	5	2024-T42 Clad	0.032	–	Replace

Forward Keelbeam Repair Index
Figure 1 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
23	2311240	• • Stiffener (3 ea.)	5	S-522	–	–	Replace
24	2311240	• • Double Splice	5	2024-T3 Clad	0.040	–	Replace
25	2311240	• • Angle (2 ea.)	5	2024-T42 Clad	0.040	–	Replace
26	2311240	• • Doubler	5	2024-T42 Clad	0.080	–	Replace
	2311240	• • Filler	5	2024-T3 Clad	0.080	–	Replace
27	2611241	• • Splice Angle	5	2024-T3 Clad	0.040	–	Replace
28	2611241	• • Spacer (RH only)	5	2024-T3 Clad	0.032	–	Replace
29	2611241	• • Spacer	5	2024-T3 Clad	0.100	–	Replace
	2611241	• • Spacer	5	2024-T3 Clad	0.080	–	Replace
30	2611241	• • Spacer (LH only)	5	2024-T3 Clad	0.020	–	Replace
	2611241	• • Angle	10	2024-T42 Clad	0.063	–	Replace

CODES	EFFECTIVITIES
1	35-001 THRU 35-011; 36-001 THRU 36-006
2	31-001 AND SUBSEQUENT; 35-012 AND SUBSEQUENT; 36-007 AND SUBSEQUENT
3	31-001 AND SUBSEQUENT; 35-012 AND SUBSEQUENT; 36-007 AND SUBSEQUENT WITH 24-INCH PASSENGER/CREW DOOR
4	31-001 AND SUBSEQUENT; 35-012 AND SUBSEQUENT; 36-006 AND SUBSEQUENT WITH 36-INCH PASSENGER/CREW DOOR
5	31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
6	35-001 THRU 35-404; 36-001 THRU 36-047
7	35-405 AND SUBSEQUENT; 36-048 AND SUBSEQUENT
8	35-001 THRU 35-347; 36-001 THRU 36-045
9	35-348 AND SUBSEQUENT; 36-046 AND SUBSEQUENT
10	35-506 AND SUBSEQUENT; 36-054 AND SUBSEQUENT

Forward Keelbeam Repair Index
Figure 1 (Sheet 3 of 3)

FORWARD KEELBEAM - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.
   (3) Cracks in the keelbeam structure are not allowed.

C. Deformation
   (1) Deformation of any kind to the keelbeam structure is not allowed.
   (2) Slight deformation of outboard bulkheads is permissible if such deformation does not cause interference with adjacent structure or plumbing and does not prohibit the installation of the access covers.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings must be replaced if cracked or if fitting hole tolerance exceeds the allowable limits. (Refer to Chapter 51.)
I. Bolts
   (1) Keelbeam attach bolts must be replaced if fatique cracks are evident, bolt is bent or there is thread damage, or if the minimum allowable diameter is exceeded. (Refer to Chapter 51.)

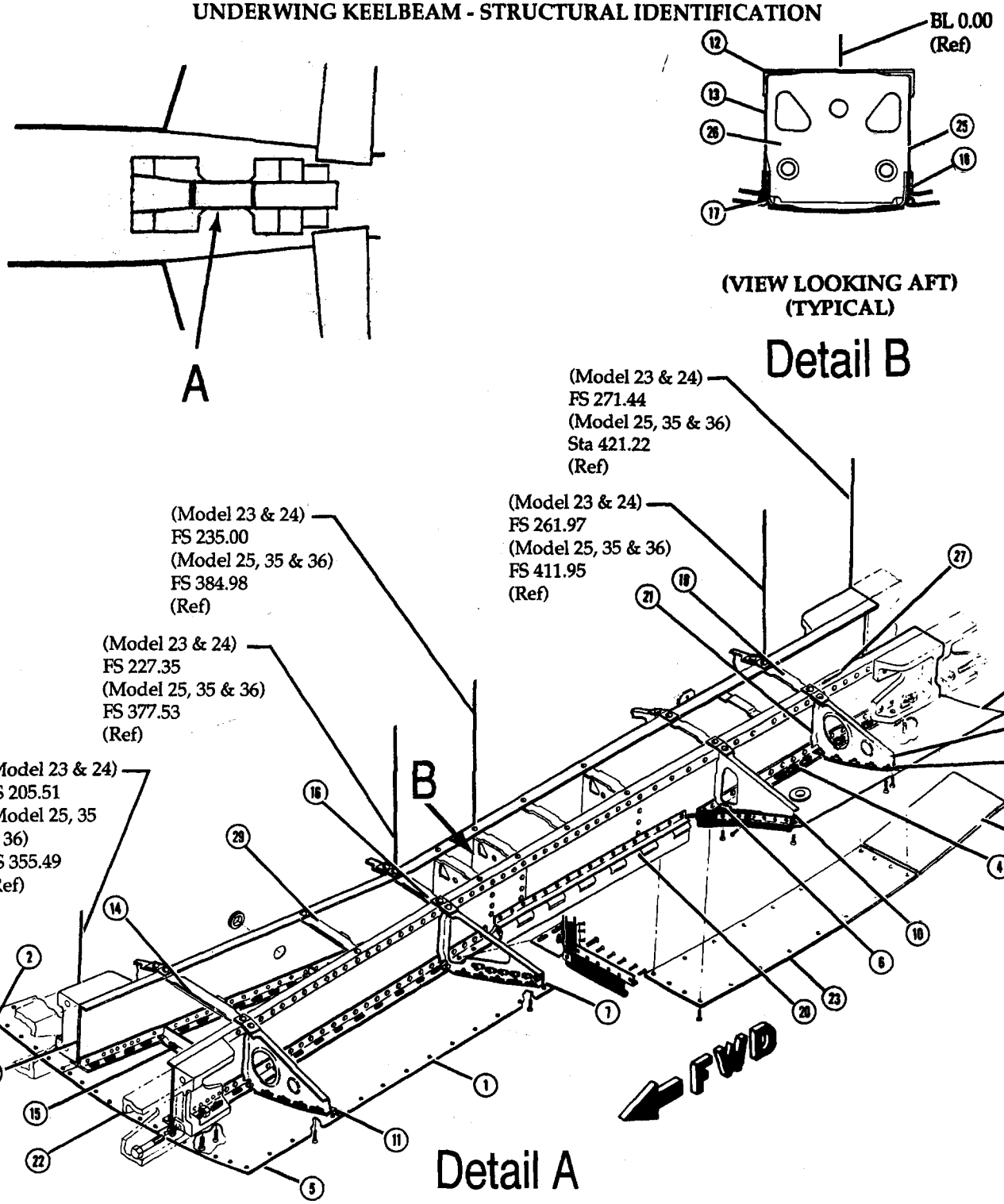
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

FORWARD KEELBEAM - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.
   B. Refer to 51-50-00 for keelbeam specific repairs.

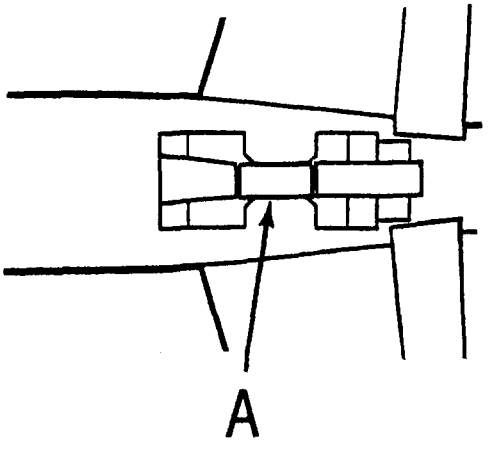
UNDERWING KEELBEAM - STRUCTURAL IDENTIFICATION

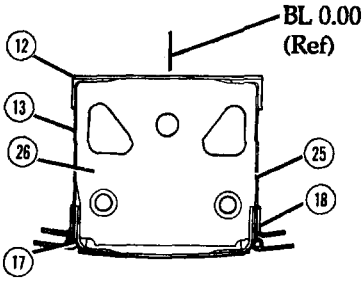


4-10C

Underwing Keelbeam Repair Index
Figure 1 (Sheet 1 of 7)

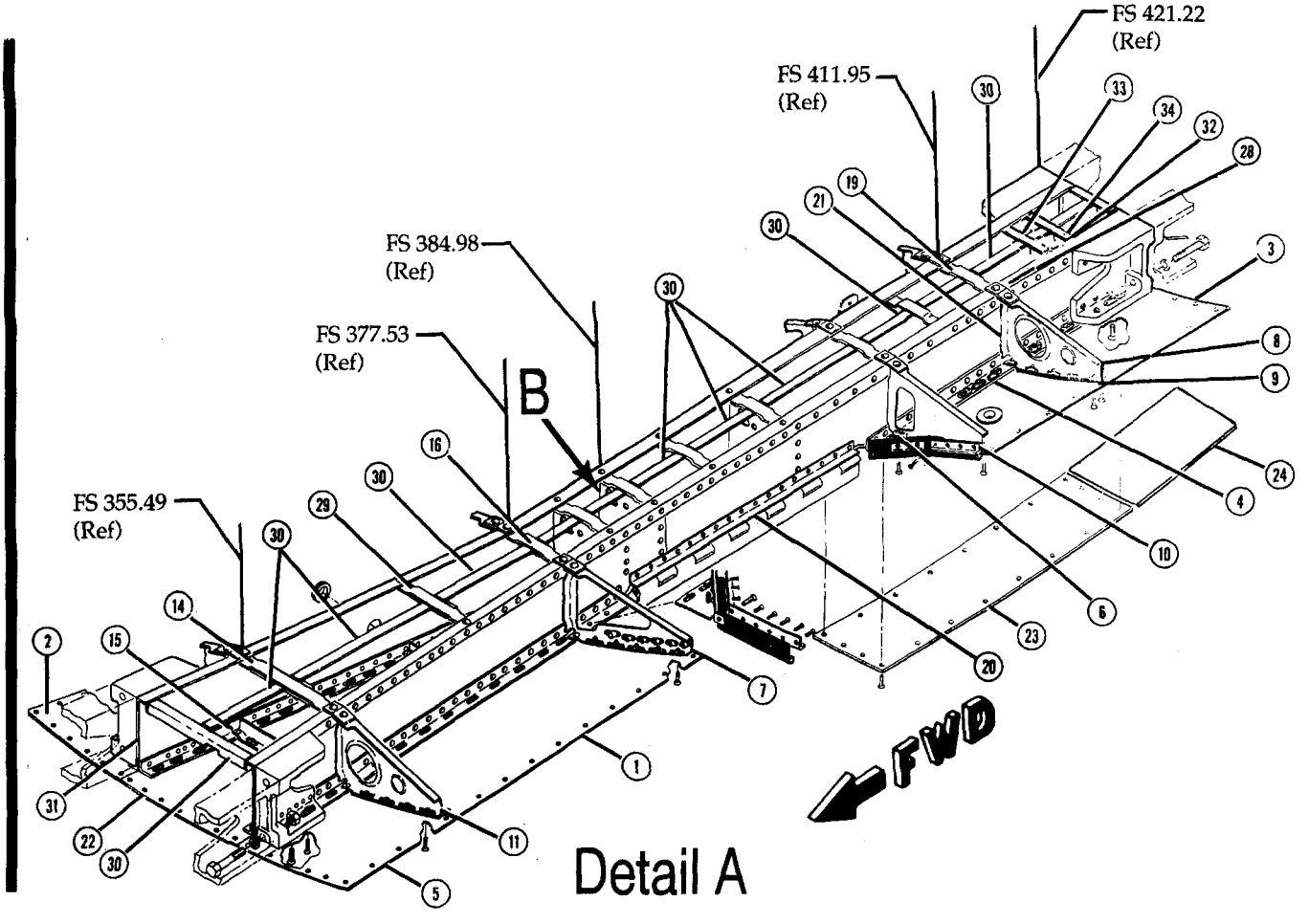
UNDERWING KEELBEAM - STRUCTURAL IDENTIFICATION





(VIEW LOOKING AFT)
(TYPICAL)

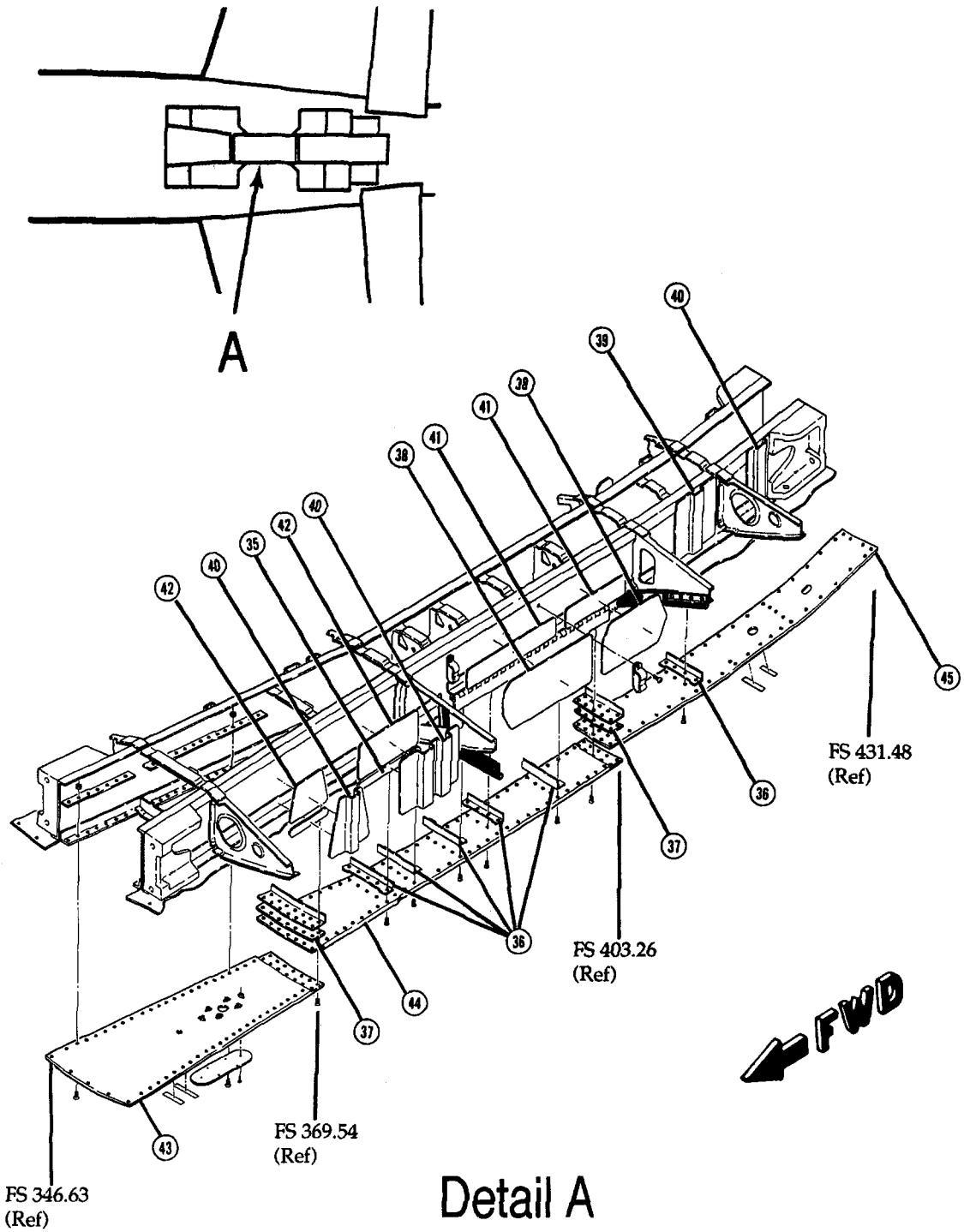
Detail B



Detail A

4-10C-1

Underwing Keelbeam Repair Index
Figure 1 (Sheet 2 of 7)



Detail A

4-81C

Underwing Keelbeam Repair Index
Figure 1 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311600	Keelbeam Instl., Underwing	1	–	–	–	–
1	2311600	• Access Cover (2 ea.)	1	2024-T3 Clad	0.032	F4-6	51-70-02
2	2311600	• Access Cover (2 ea.)	2	2024-T3 Clad	0.032	F4-6	51-70-02
	2311600	• Access Cover (RH only)	3	2024-T3 Clad	0.063	F4-6	51-70-02
	2388366	• Access Cover, (2 ea.)	4	2024-T3 Clad	0.063	F4-6	51-70-02
	2688149	• Access Cover (LH only)	5	2024-T3 Clad	0.063	F4-6	51-70-02
3	2311600	• Access Cover (4 ea.)	1	2024-T42 Clad	0.032	F4-6	51-70-02
4	2311600	• Seal Angle (6 ea.)	1	2024-T42 Clad	0.050	–	51-70-02
	2311600	• Seal Angle (2 ea.)	6	2024-T42 Clad	0.050	–	51-70-02
	2323018	• Fuel Vent Cover	7	6061-T6	0.040	F4-1	51-70-02
	2311600	• Keel Beam Assy.	1	–	–	–	–
	2311600	• • Clip (4 ea.)	1	2024-T42 Clad	0.025	F4-6	–
	2311600	• • Bulkhead Assy., LH & RH	1	–	–	–	51-70-03
5	2311600	• • • Bulkhead	1	2024-T42 Clad	0.050	F4-6	51-70-02
6	2311600	• • Gusset Assy. (4 ea.)	1	–	–	–	–
	2311600	• • • Gusset	1	2024-T42 Clad	0.050	F4-6	51-70-03
	2311600	• • • Filler	1	2024-T3 Clad	0.063	F4-6	51-70-02
	2311600	• • Bulkhead Assy., LH & RH	1	–	–	–	–
7	2311600	• • • Bulkhead	1	2024-T42 Clad	0.025	F4-6	51-70-03
	2311600	• • • Slice Plate	1	2024-T42 Clad	0.032	F4-6	51-70-02
	2311600	• • Bulkhead Assy., LH & RH	1	–	–	–	–
8	2311600	• • • Bulkhead	1	2024-T42 Clad	0.025	F4-6	51-70-03
9	2311600	• • • Doubler	1	2024-T3 Clad	0.032	F4-6	51-70-02
	2311600	• • Bulkhead Assy., LH & RH	1	–	–	–	–
10	2311600	• • • Bulkhead	1	2024-T3 Clad	0.050	F4-6	51-70-03
11	2327014	• • Support Angle	1	S-571	–	F4-6	51-70-02
	2311610	• • Underwing Keelbeam Assy.	8	–	–	–	–
	12225-0032	• • Underwing Keelbeam Assy.	9	–	–	–	–
12	2311610	• • • Top Cap	8	Z2 Bondolite	0.091	–	Replace
	12225-0032	• • • Top Cap	9	2024-T3 Clad	0.050	F4-6	Replace
13	2311610	• • • Top Angle LH & RH	8	S-568	–	F4-6	Replace
	12225-0032	• • • Top Angle LH & RH	9	S-568	–	F4-6	Replace
14	2311610	• • • Angle (2 ea.)	11	2024-T42 Clad	0.063	F4-6	Replace
15	2311610	• • • Angle (4 ea.)	1	2024-T42 Clad	0.063	F4-6	Replace
16	2311610	• • • Spacer	1	2024-T3 Clad	0.032	F4-6	Replace
17	2311610	• • • Angle, LH & RH	8	2024-T42 Clad	0.080	F4-6	Replace
	2311610	• • • Angle LH & RH (3 ea.)	8	2024-T42 Clad	0.063	F4-6	Replace
	2311610	• • • Angle LH & RH (2 ea.)	9	2024-T42 Clad	0.063	F4-6	Replace
	2311610	• • • Filler (4 ea.)	1	2024-T42 Clad	0.032	F4-6	Replace
	2311610	• • • Bracket Assy.	1	–	–	–	–
	2311610	• • • • Bracket	1	2024-T42 Clad	0.071	F4-6	Replace
	2311610	• • • Angle (10 ea.)	8	2024-0 Clad	0.063	F4-6	Replace
18	2311610	• • • Angle (8 ea.)	14	2024-0 Clad	0.063	F4-6	Replace
19	2311610	• • • Angle (5 ea.)	15	2024-0 Clad	0.063	F4-6	Replace
20	2311610	• • • Hinge Assy.	1	–	–	–	–
	2311610	• • • • Hinge Half (2 ea.)	1	▷1	–	–	Replace
	2311610	• • • • Hinge Pin	1	▷2	3/16	–	Replace

Underwing Keelbeam Repair Index
Figure 1 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
21	2311610	• • • Fillers (2 ea.)	8	2024-T3 Clad	0.090	F4-6	Replace
	12225-0032	• • • Fillers (3 ea.)	14	2024-T3 Clad	0.090	F4-6	Replace
22	2311610	• • • Fwd Cover	8	2024-T3 Clad	0.100	F4-6	Replace
	12225-0032	• • • Fwd Cover	14	2024-T3 Clad	0.100	F4-6	Replace
23	2311610	• • • Center Cover	12	2024-T3 Clad	0.050	F4-6	Replace
	2311610	• • • Center Cover	19	2024-T3 Clad	0.100	F4-6	Replace
24	2311610	• • • Aft Cover	8	2024-T3 Clad	0.100	F4-6	Replace
	12225-0032	• • • Aft Cover	14	2024-T3 Clad	0.100	F4-6	Replace
25	2311610	• • • Web LH & RH	8	2024-T3 Clad	0.080	F4-6	Replace
	12225-0032	• • • Web LH & RH	9	2024-T3 Clad	0.080	F4-6	Replace
26	2311610	• • • Gusset (3 ea.)	8	6061-0	0.080	F4-6	Replace
	12225-0032	• • • Gusset (3 ea.)	17	6061-0	0.080	F4-6	Replace
	2311610	• • • Angle, LH & RH	1	2024-0 Clad	0.063	F4-6	Replace
27	2311610	• • • Stiffener	10	2024-T3 Clad	0.040	F4-6	Replace
28	12225-0032	• • • Stiffener	16	2024-T3 Clad	0.040	F4-6	Replace
29	S-151	• • • Bracket	19	–	–	F4-6	Replace
	12225-0032	• • • Fillers (9 ea.)	9	2024-T3 Clad	0.090	F4-6	Replace
	12225-0032	• • • *Fillers (2 ea.)*	*14*	*2024-T3 Clad*	*0.090*	*F4-6*	*Replace*
	12225-0032	• • • Fillers (2 ea.)	16	2024-T3 Clad	0.032	F4-6	Replace
	12225-0032	• • • *Fillers (2 ea.)*	17	2024-T3 Clad	0.100	F4-6	Replace
	12225-0032	• • • Strap (8 ea.)	9	2024-T3 Clad	0.040	F4-6	Replace
	12225-0032	• • • Doubler (2 ea.)	9	2024-T3 Clad	0.040	F4-6	Replace
	12225-0032	• • • Angle LH & RH	14	2024-0 Clad	0.080	F4-6	Replace
	12225-0032	• • • Angle LH & RH	14	S-571	–	F4-6	Replace
	12225-0032	• • • Angle (2 ea.)	14	2024-0 Clad	0.063	F4-6	Replace
	12225-0032	• • • Angle LH & RH (2 ea.)	9	2024-0 Clad	0.063	F4-6	Replace
30	12225-0032	• • • Angle LH & RH (3 ea.)	9	S-571	–	–	Replace
	12225-0032	• • • Angle (16 ea.)	9	S-571	–	–	Replace
31	2311611	• • • Fitting, Fwd (2 ea.)	1	[3]	–	–	51-70-00
	2311611	• • • Fitting, Aft (2 ea.)	1	[3]	–	–	51-70-00
	2516055	• • • Bracket Assy., LH RH	8	–	–	F4-1	–
	2516055	• • • • Bracket, LH RH	8	2024-T3 Clad	0.050	F4-1	Replace
	2516055	• • • • Bracket, LH RH	8	2024-T3 Clad	0.032	F4-1	Replace
	2516055	• • • • Spacer	8	2024-T3 Clad	0.090	F4-1	Replace
32	5404010	• • • Angle	8	S-678	–	–	Replace
33	5404010	• • • Angle	8	S-501	–	–	Replace
34	5404010	• • • Doubler	8	2024-T3 Clad	0.080	F4-6	Replace
35	3111954	• • • Angle, LH & RH	15	2024-0 Clad	0.080	F4-6	Replace
36	3111955	• • • Angle (9 ea.)	15	2024-0 Clad	0.063	F4-6	Replace
37	3111955	• • • Filler (2 ea.)	15	2024-T3 Clad	0.080	F4-6	Replace
38	3111955	• • • Doubler, LH & RH (2 ea.)	15	2024-T3 Clad	0.050	F4-6	Replace
39	3111955	• • • Stiffener, LH & RH	15	2024-0 Clad	0.063	F4-6	Replace
40	3111955	• • • Stiffener, LH & RH (2 ea.)	15	2024-0 Clad	0.080	F4-6	Replace

Underwing Keelbeam Repair Index
Figure 1 (Sheet 5 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
41	2111955	• • • Filler (4 ea.)	15	2024-T3 Clad	0.063	F4-6	Replace
42	2111955	• • • Filler (2 ea.)	15	2024-T3 Clad	0.100	F4-6	Replace
	2111955	• • • Filler (2 ea.)	15	2024-T3 Clad	0.032	F4-6	Replace
	3111950	Skit Plate Instl.	15	–	–	–	–
43	3111951	• Skid Plate, Fwd	15	7075T7351 AL	2.000	F4-6	Replace
44	3111952	• Skid Plate, Center	15	7075T7351 AL	2.000	F4-6	Replace
45	3111953	• Skid Plate, Aft	15	7075T7351 AL	2.000	F4-6	Replace

Underwing Keelbeam Repair Index
Figure 1 (Sheet 6 of 7)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	23-003 THRU 23-099; 24-100 THRU 24-197; 25-002 THRU 25-033
3	24-240 THRU 24-357; 25-034 THRU 25-357; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	24-240 THRU 24-350; 25-034 THRU 25-226; 35-001 THRU 35-124; 36-001 THRU 36-032
5	24-251 THRU 24-357; 25-227 THRU 25-373; 35-125 AND SUBSEQUENT; 36-033 AND SUBSEQUENT
6	24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
7	23-002 THRU 23-039
8	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
9	28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT
10	25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
11	28-001 THRU 28-005; 29-001 AND 29-002; 31-002 AND SUBSEQUENT
12	23-002 THRU 23-099
13	23-090 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
14	28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 THRU 31-104
15	31-105 AND SUBSEQUENT
16	31-002 AND SUBSEQUENT
17	31-019 AND SUBSEQUENT
18	24-308, 24-323 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-002 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
19	24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001; 31-002 THRU 31-105; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

NOTES:

1> Made from MS20257XC5.

2> 302B Stainless Steel Rod, Heat Treat per MIL-S-7720A.

3> Aluminum 2014T6 forging.

Underwing Keelbeam Repair Index
Figure 1 (Sheet 7 of 7)

UNDERWING KEELBEAM - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.
   (3) Cracks in the keelbeam structure are not allowed.

C. Deformation
   (1) Deformation of any kind to the keelbeam structure is not allowed.
   (2) Slight deformation of outboard bulkheads is permissible if such deformation does not cause interference with adjacent structure or plumbing and does not prohibit the installation of the access covers.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings must be replaced if cracked or if fitting hole tolerance exceeds the allowable limits. (Refer to Chapter 51.)
I. Bolts
   (1) Keelbeam attach bolts must be replaced if fatique cracks are evident, bolt is bent or there is thread damage, or if the minimum allowable diameter is exceeded. (Refer to Chapter 51.)

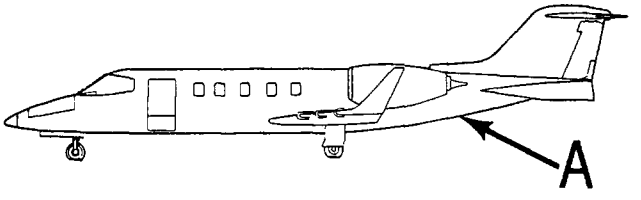
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

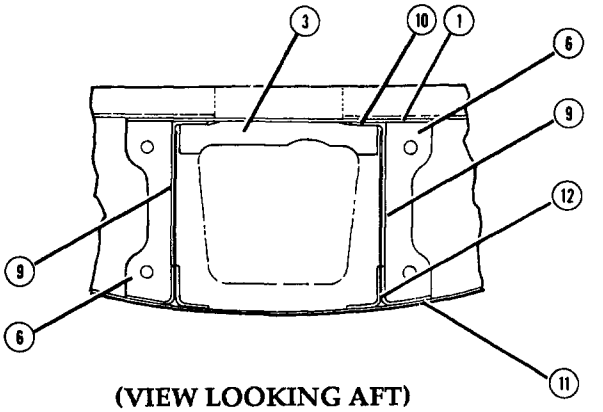
Allowable Material Thickness
Figure 101

UNDERWING KEELBEAM - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for typical repairs.
   B. Refer to 51-50-00 for keelbeam specific repairs.

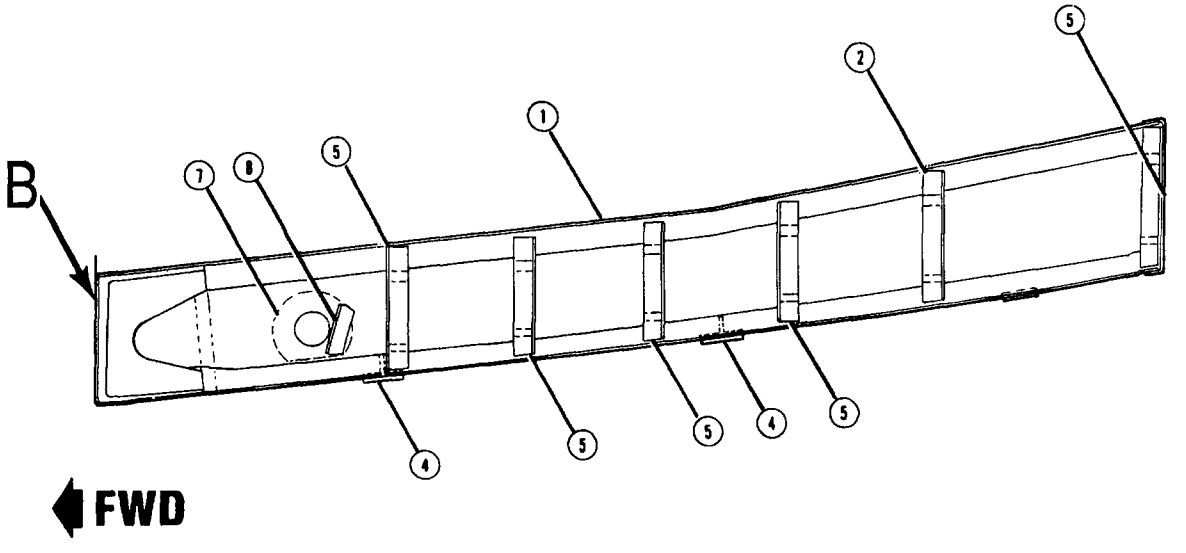
AFT FUSELAGE KEELBEAM - STRUCTURAL IDENTIFICATION





(VIEW LOOKING AFT)

Detail B



(TYPICAL)

(VIEW LEFT SIDE LOOKING INBOARD)

Detail A

Aft Fuselage Keelbeam Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2512017	Aft Fuselage Keelbeam Instl.	1	–	–	–	–
1	2512017	• Cap Plate	1	2024-T3 Clad	0.090	F4-1	51-70-02
2	2312017	• Angle, LH & RH	1	S-571	–	–	Replace
3	2312017	• Angle (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
4	2312017	• Tee (2 ea.)	1	S-596	–	–	Replace
	2312017	• Drain Assy.	1	–	–	–	Replace
	2312017	• • Plate	1	6061-T6	0.050	–	Replace
	2312017	• • Tube	1	[1]	–	–	Replace
	2312017	• Cover	1	2024-T3 Clad	0.050	–	Replace
	2512017	• Splice Plate	1	2024-T42 Clad	0.063	F4-1	Replace
	2512017	• Keelbeam Assy., LH & RH Aft	1	–	–	–	Replace
5	2512017	• • Angle (4 ea.)	1	S-571	–	F4-1	Replace
	2312017	• • Shim	1	2024-T3 Clad	0.032	–	Replace
	2312017	• • Shim	1	2024-T3 Clad	0.100	–	Replace
	2312017	• • Shim	1	2024-T3 Clad	0.063	–	Replace
6	2312018	• • Fitting	1	[2]	–	–	Replace
7	2312017	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
8	2312017	• • Support Angle	1	2024-T3 Clad	0.032	–	Replace
9	2512017	• • Webb	1	2024-T42 Clad	0.040	F4-1	Replace
10	2512017	• • Angle, Upper	1	S-568	–	F4-1	Replace
11	2512017	• • Angle, Lower	1	2024-T42 Clad	0.068	F4-1	Replace
12	2512017	• • Angle, Lower	1	2024-T42 Clad	0.080	F4-1	Replace

CODES **EFFECTIVITIES**

1 31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

NOTES:

[1] Fabricated from 6061T6 0.375 O.D. X 0.035 I.D. Seamless tubing

[2] Forging - 2014T6

Aft Fuselage Keelbeam Repair Index
Figure 1 (Sheet 2 of 2)

AFT FUSELAGE KEELBEAM - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.
   (3) Cracks in the keelbeam structure are not allowed.

C. Deformation
   (1) Deformation of any kind to the keelbeam structure is not allowed.
   (2) Slight deformation of outboard bulkheads is permissible if such deformation does not cause interference with adjacent structure or plumbing and does not prohibit the installation of the access covers.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, an epoxy primer and/or exterior paint is applied, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings must be replaced if cracked or if fitting hole tolerance exceeds the allowable limits. (Refer to Chapter 51.)
I. Bolts
   (1) Keelbeam attach bolts must be replaced if fatique cracks are evident, bolt is bent or there is thread damage, or if the minimum allowable diameter is exceeded. (Refer to Chapter 51.)

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

AFT FUSELAGE KEELBEAM - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs.
   B. Refer to 51-50-00 for keelbeam specific repairs.

CHAPTER

54

NACELLES PYLONS

Learjet

STRUCTURAL REPAIR MANUAL

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Subject	Chapter Section Subject	Page
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Allowable Damage Limits	54-30-30	101
ENGINE NACELLE AFTERBODY - REPAIR	54-30-30	
Approved Repairs	54-30-30	201
ENGINE EXHAUST NOZZLE ASSEMBLY - STRUCTURAL IDENTIFICATION	54-30-40	
Engine Exhaust Nozzle Assembly Repair Index	54-30-40	1
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Learjet

STRUCTURAL REPAIR MANUAL

Chapter Section Subject	Page	Date
54-TITLE		
54-List of Eff. Pgs.	1	May 15/92
54-Contents	1	May 15/92
54-Contents	2	May 15/92
54-00-00	1	May 15/92
54-00-00	2	May 15/92
54-00-00	3	May 15/92
54-00-00	4	May 15/92
54-10-10	1	May 15/92
54-10-10	2	May 15/92
54-10-10	3	May 15/92
54-10-10	101	May 15/92
54-10-10	102	May 15/92
54-10-10	201	May 15/92
54-20-10	1	May 15/92
54-20-10	2	May 15/92
54-20-10	3	May 15/92
54-20-10	101	May 15/92
54-20-10	102	May 15/92
54-20-10	201	May 15/92
54-20-20	1	May 15/92
54-20-20	2	May 15/92
54-20-20	3	May 15/92
54-20-20	101	May 15/92
54-20-20	102	May 15/92
54-20-20	201	May 15/92
54-30-10	1	May 15/92
54-30-10	2	May 15/92
54-30-10	3	May 15/92
54-30-10	4	May 15/92
54-30-10	101	May 15/92
54-30-10	102	May 15/92
54-30-10	201	May 15/92
54-30-10	202	May 15/92
54-30-10	203	May 15/92
54-30-10	204	May 15/92
54-30-10	205	May 15/92
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54-30-20	2	May 15/92
54-30-20	3	May 15/92
54-30-20	101	May 15/92
54-30-20	102	May 15/92
54-30-20	201	May 15/92
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54-30-30	4	May 15/92
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54-30-30	8	May 15/92
54-30-30	101	May 15/92
54-30-30	102	May 15/92
54-30-30	201	May 15/92
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54-30-40	2	May 15/92
54-30-40	101	May 15/92
54-30-40	102	May 15/92
54-30-40	201	May 15/92
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54-50-00	2	May 15/92
54-50-00	3	May 15/92
54-50-00	4	May 15/92
54-50-00	5	May 15/92
54-50-00	101	May 15/92
54-50-00	102	May 15/92
54-50-00	201	May 15/92

NACELLES AND PYLONS - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE: The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. This chapter covers structural components, allowable damage limits, skin gap tolerances (where applicable), and repair procedures for nacelles and pylons.

2. REPAIR INDEX

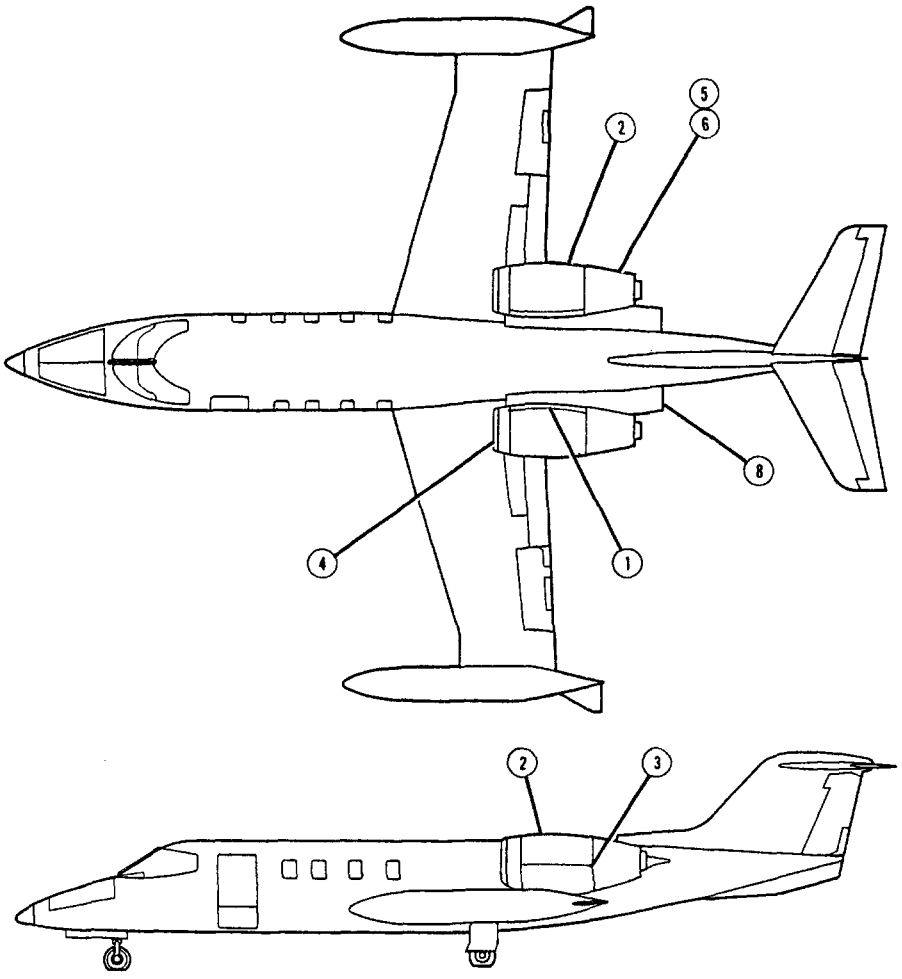
A. An engine nacelle and pylon master repair index is provided to aid in the location of specific nacelle and pylon assemblies throughout this Chapter. (See Figure 1.)

3. ALLOWABLE DAMAGE

A. Allowable damage limits for nacelle and pylon components are provided in each respective section. Refer to nacelle and pylon master repair index (Figure 1) for specific sections.

4. SKIN GAP TOLERANCES

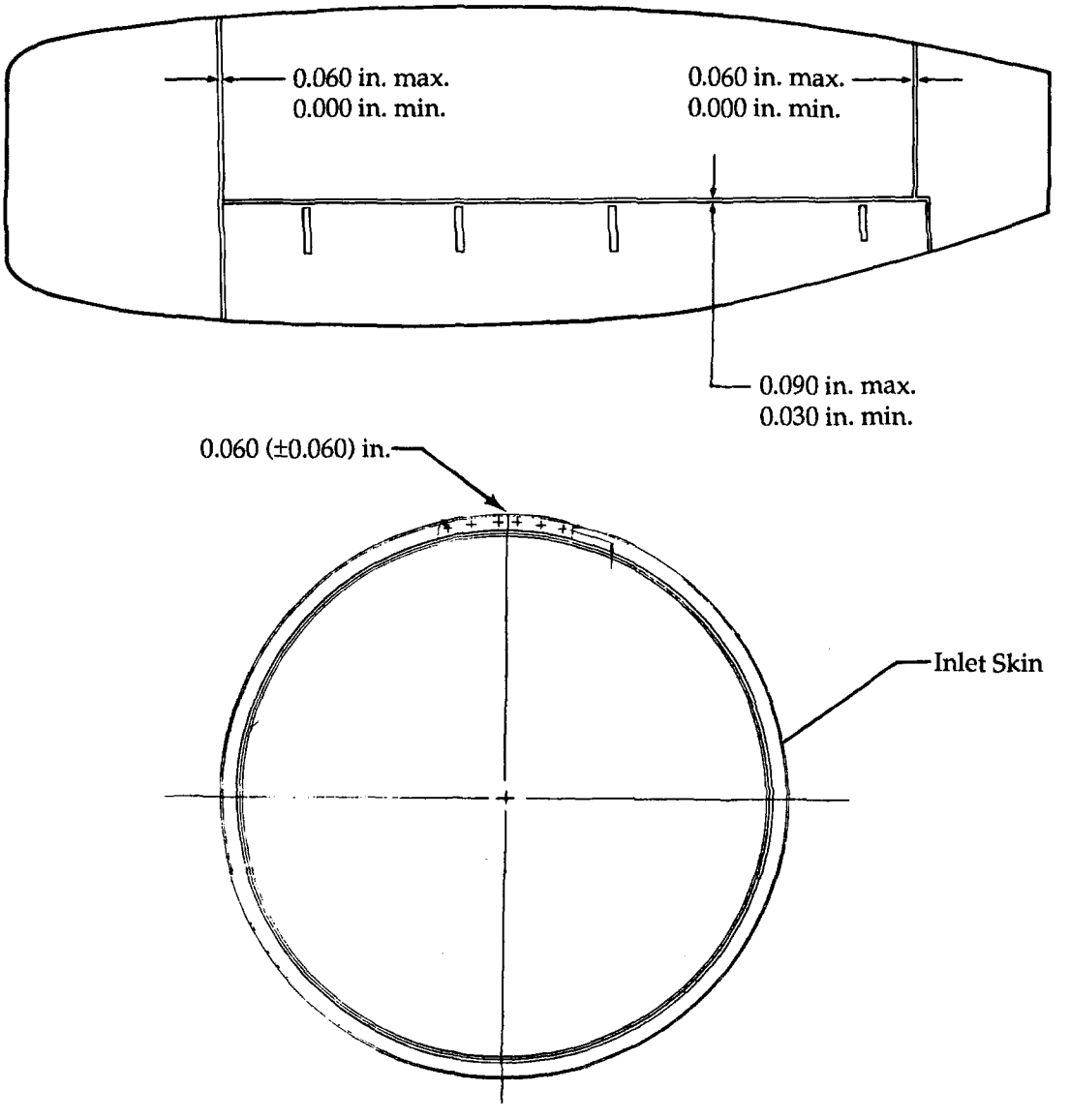
A. Skin gap tolerances for nacelle and pylon are given in Figure 2.



Item	Description	Chapter Section Subject
1	Firewall Assembly	54-10-10
2	Upper Cowl Assembly	54-20-10
3	Lower Cowl Assembly	54-20-20
4	Engine Inlet Assembly	54-30-10
5	Duct/Fan/Exhaust Assembly	54-30-20
6	Engine Nacelle Afterbody	54-30-30
7	Nozzle Assembly, Engine Exhaust	54-30-40
8	Pylon Assembly	54-50-00

(TYPICAL)

Nacelle and Pylon Master Repair Index
Figure 1

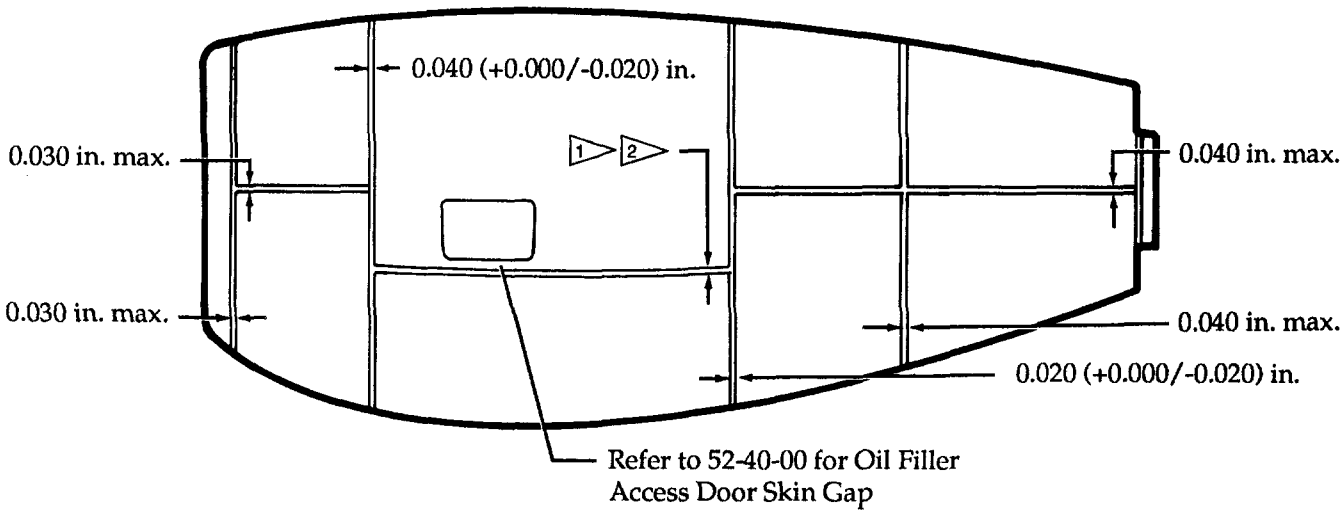


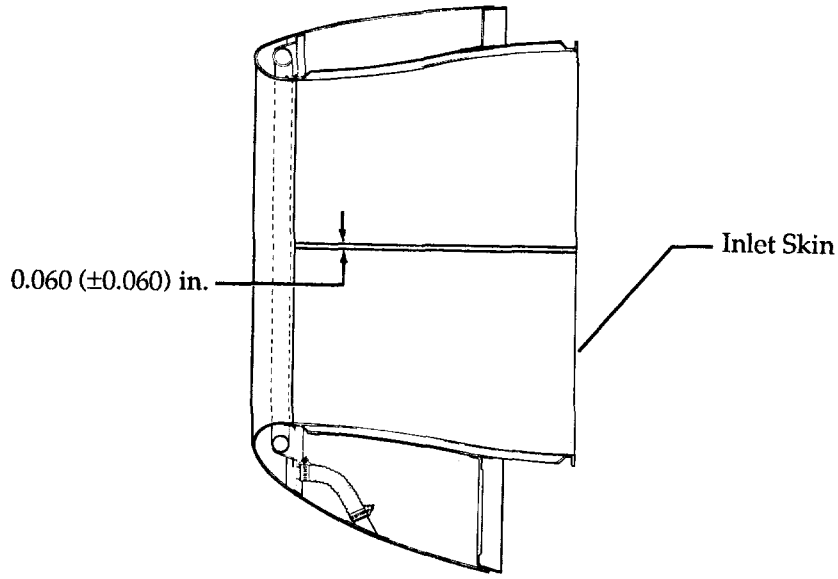
(VIEW LOOKING FORWARD AT AIR INTAKE TUBE)

Detail A

7-57A
7-54A

Engine Nacelle Installation Skin Gap Tolerances
Figure 2 (Sheet 1 of 2)





ENGINE INLET ASSEMBLY

NOTES:

1. *On Aircraft 31-002 thru 31-021; 35-002 thru 35-659; 36-002 thru 36-059, 36-062 and 36-063;* 0.120 in. max./0.030 in. min. 3
2. *On Aircraft 31-022 and Subsequent; 35-660 and Subsequent; 36-060, 36-061, 36-064 and Subsequent* 0.090 in max./0.030 in min. 3
3. Maximum allowable variance of 0.030 inches over any 18 inch section.

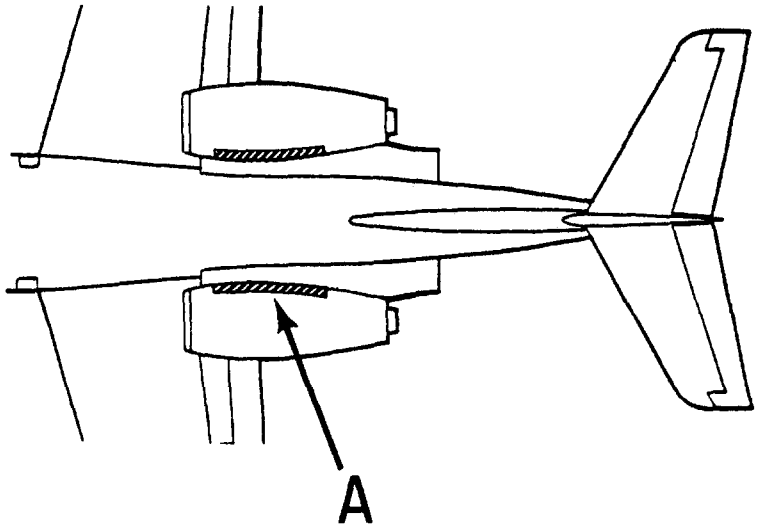
7-57A
7-54A

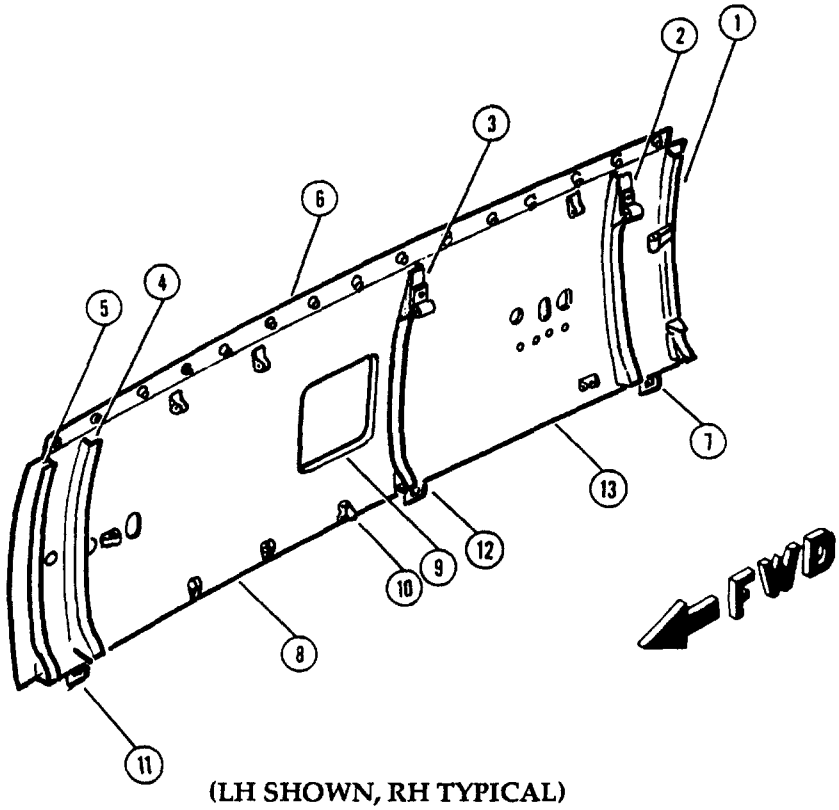
Engine Nacelle Installation Skin Gap Tolerances
Figure 2 (Sheet 2 of 2)

NACELLE FIREWALL - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The nacelle firewall assembly is constructed basically of stainless steel and provides for attachment of fuel and hydraulic lines, electrical wiring feedthrus, engine controls, and other systems. The firewall assembly is installed to prevent the spread of heat or fire into the pylon and fuselage area.
   B. The nacelle firewall assembly repair index (Figure 1) is provided to aid maintenance personnel in locating and identifying structural components.

NACELLE FIREWALL - STRUCTURAL IDENTIFICATION





(LH SHOWN, RH TYPICAL)

Detail A

A7-30C

Nacelle Firewall Assembly Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652030	Firewall Assembly, LH and RH	1	–	–	1	–
1	2652030	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
2	2652030	• Stiffener	1	2024-T42 Clad	0.032	–	Replace
3	2652030	• Stiffener	1	2024-T42 Clad	0.032	–	Replace
4	2652030	• Stiffener	1	2024-T42 Clad	0.032	–	Replace
5	2652030	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
6	2652030	• Angle	1	2024-T42 Clad	0.040	–	Replace
	2652030	• Spacer	1	2024-T3 Clad	0.020	–	Replace
7	2652030	• Channel	1	S-735	–	–	Replace
8	2652030	• Skin	1	321 Stainless 3	0.025	–	Replace
9	2652030	• Filler	1	321 Stainless 3	0.025	–	Replace
	2652030	• Doubler	1	321 Stainless 3	0.032	–	Replace
	2652055	• Fire Seal	1	301 Stainless 3	0.020	–	Replace
10	2652030	• Stiffener	1	2024-T42 Clad	0.032	–	Replace
11	2652030	• Channel	1	S-735	–	–	Replace
12	2652030	• Channel	1	S-735	–	–	Replace
13	2652030	• Longeron	1	2024-T42 Clad	0.040	–	Replace
	2652030	• Guide Retainer (LH, 2 ea.)	1	2	0.032	–	Replace
	2652030	• Guide Retainer (RH, 3 ea.)	1	2	0.032	–	Replace

CODES **EFFECTIVITIES**

1 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT

NOTES:

1 F14-1 inside after assembly, no finish on outside.

2 301 Stainless Full Hard, optional to use 301 Stainless 3/4 Hard.

3 Condition annealed.

Nacelle Firewall Assembly Repair Index
Figure 1 (Sheet 2 of 2)

NACELLE FIREWALL - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the nacelle firewall structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

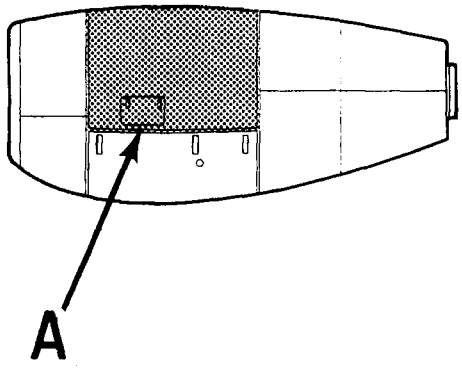
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

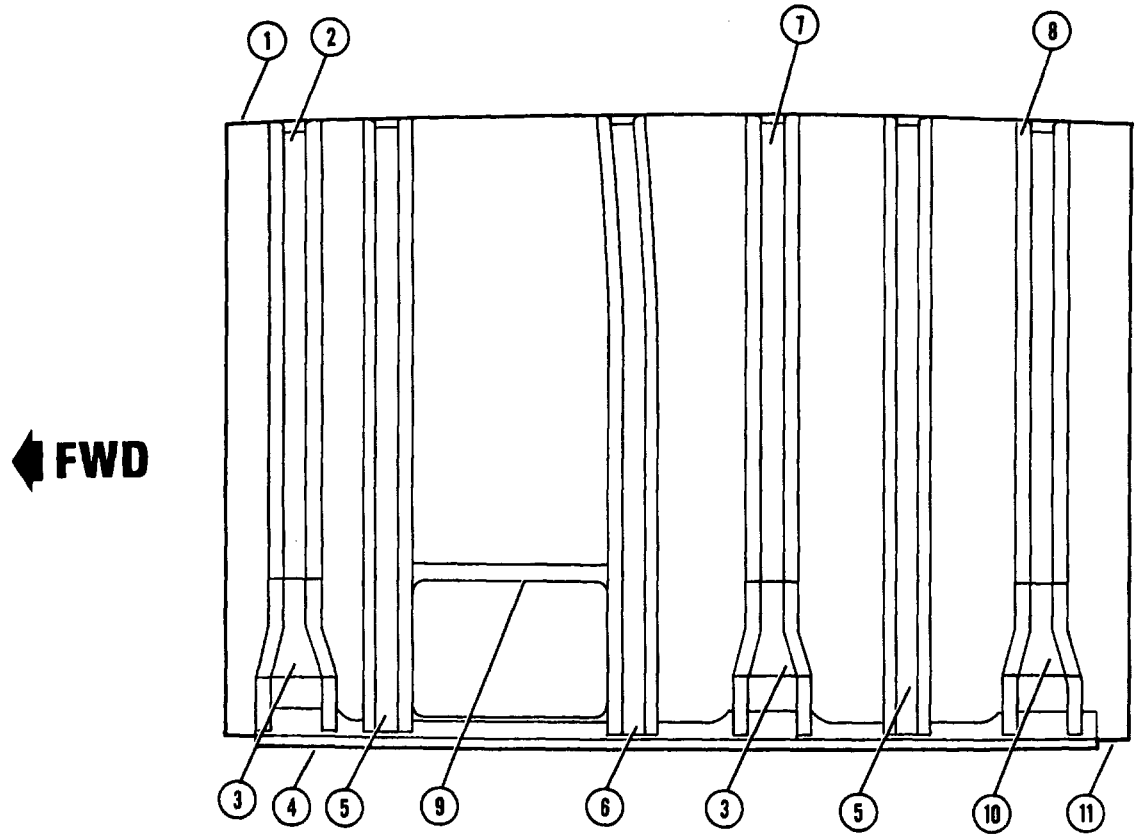
Allowable Material Thickness
Figure 101

NACELLE FIREWALL - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the nacelle firewall assembly.

UPPER COWL ASSEMBLY - STRUCTURAL IDENTIFICATION





(TYPICAL)

Detail A

7-58A
7-54B

Upper Cowl Assembly Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652023	Engine Cowl Assembly, Upper, LH and RH	1	–	–	–	–
1	2652023	• Skin	1	2024-T42 Clad	0.025	–	51-70-02
2	2652023	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
	2652023	• Doubler, Fwd	1	2024-T42 Clad	0.040	–	Replace
3	2652023	• Channel (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652023	• Splice Plate	1	2024-T42 Clad	0.032	–	Replace
	2652023	• Shim, Laminated	1	[1]	0.032	–	Replace
	2652023	• Channel	1	S-735	–	–	Replace
4	2652023	• Doubler, Side (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2652023	• Filler (4 ea.)	1	2024-T42 Clad [2]	0.080	–	Replace
	2652023	• Longeron	1	2024-T42 Clad	0.050	–	Replace
	2652023	• Bearing Plates	–	[3]	0.032	–	Replace
5	2652023	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
6	2652023	• Stiffener	2	2024-T42 Clad	0.025	–	Replace
	2652023	• Stiffener	3	2024-T42 Clad	0.040	–	Replace
7	2652023	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
8	2652023	• Stiffener	2	2024-T42 Clad	0.025	–	Replace
	2652023	• Stiffener	3	2024-T42 Clad	0.040	–	Replace
	2652023	• Doubler, Aft	1	2024-T42 Clad	0.040	–	Replace
9	2652023	• Doubler	1	2024-T42 Clad	0.032	–	Replace
	2652023	• Doubler (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652023	• Filler (2 ea.)	1	2024-T42 Clad	0.072	–	Replace
	2652023	• Shim	1	2024-T42 Clad	0.025	–	Replace
10	2652023	• Channel (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652023	• Splice Plate	1	2024-T42 Clad	0.032	–	Replace
	2652023	• Shim, Laminated	1	[1]	0.032	–	Replace
	2652023	• Channel	1	S-735	–	–	Replace
	2652023	• Filler	3	2024-T3 Clad	0.160	–	Replace
	2652023	• Filler	3	2024-T42 Clad	0.190	–	Replace
11	2652023	• Doubler, (Inbd.)	1	2024-T42 Clad	0.020	–	Replace
	2652023	• Filler (4 ea.)	1	2024-T42 Clad	0.020	–	Replace

Upper Cowl Assembly Repair Index
Figure 1 (Sheet 2 of 3)

CODES	EFFECTIVITIES
1	31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	35-002 THRU 35-263; 36-002 THRU 36-044
3	31-001 AND SUBSEQUENT; 35-264 AND SUBSEQUENT; 36-045 AND SUBSEQUENT

NOTES:

1. Laminated shim stock, 2024-T3, 0.002 or 0.003 lamination.

2. Optional to use 2024-T3 laminated shim stock with 0.002 or 0.003 laminations.

3. 301 Stainless Full Hard, optional to use 301 Stainless 3/4 Hard.

Upper Cowl Assembly Repair Index
Figure 1 (Sheet 3 of 3)

UPPER COWL ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the upper cowl assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

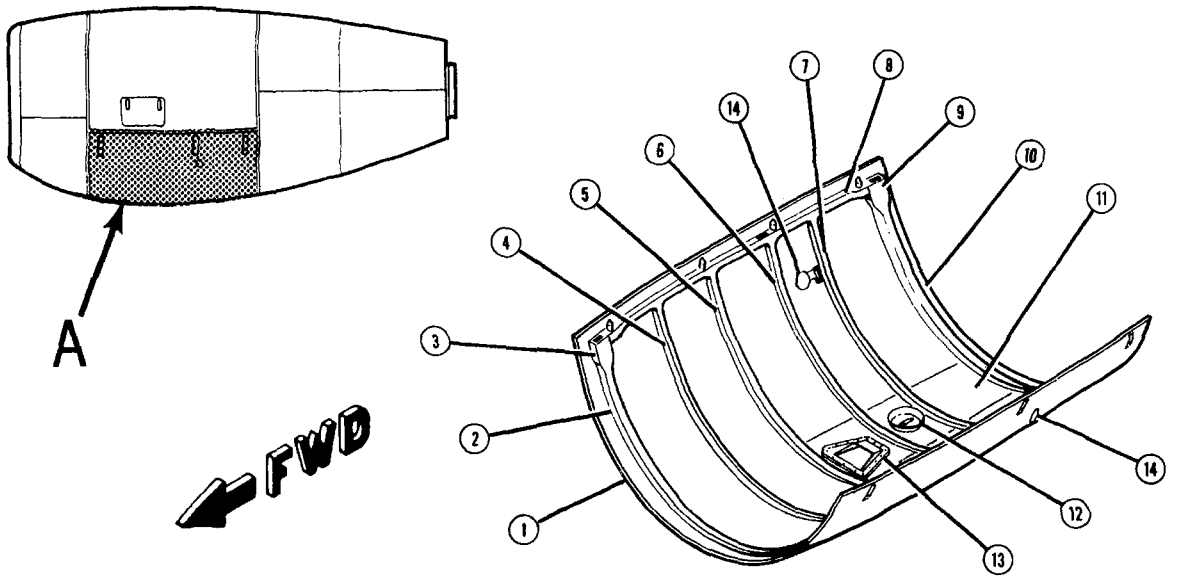
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

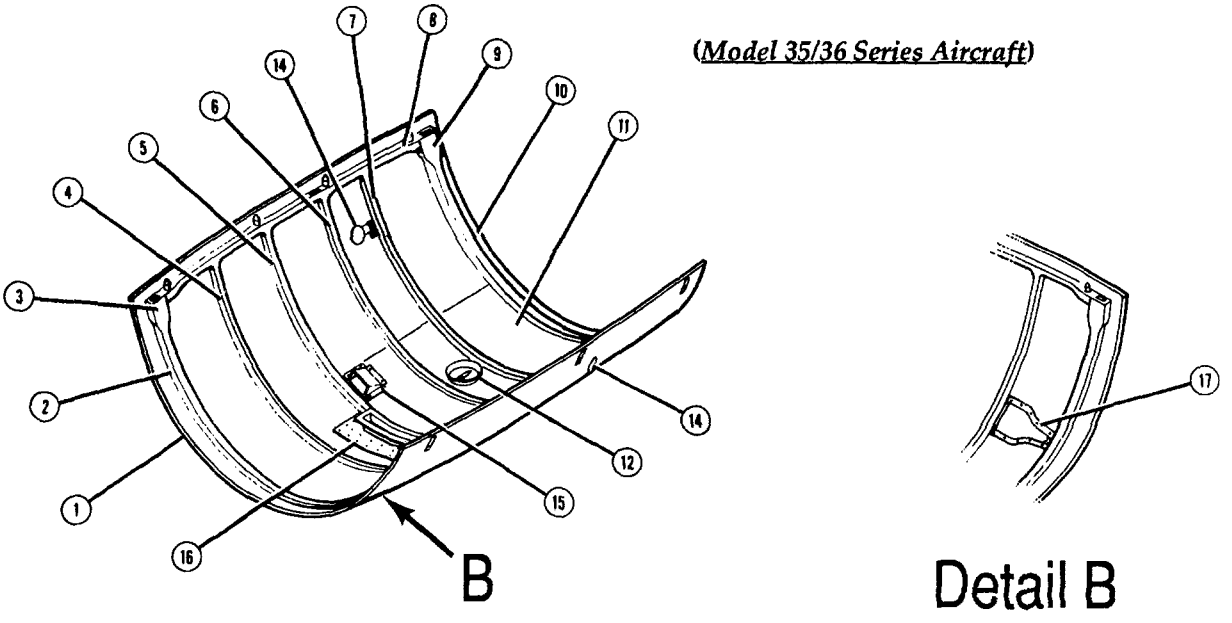
UPPER COWL ASSEMBLY - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the upper cowl assembly.

LOWER COWL ASSEMBLY - STRUCTURAL IDENTIFICATION



(*Model 35/36 Series Aircraft*)



Detail B

(*Model 31 Series Aircraft*)

(TYPICAL)

Detail A

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652028	Engine Cowl Assy, Lower, LH/RH	1	–	–	–	–
1	2652028	• Skin	2	2024-T42 Clad	0.025	–	51-70-02
	2652028	• Skin	3	2024-T42 Clad	0.032	–	51-70-02
2	2652028	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
	2652025	• Doubler, Fwd	1	2024-T42 Clad	0.040	–	Replace
3	2652028	• Latch Channel	1	2024-T42 Clad	0.032	–	Replace
	2652025	• Clip Angle	1	S-654	–	–	Replace
	2652025	• Clip Angle	1	S-568	–	–	Replace
	2652025	• Bearing Plate	1	2024-T3 Clad	0.032	–	Replace
	2652025	• Shim, Laminated	1	1	–	–	Replace
4	2652028	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
5	2652028	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
6	2652028	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
	2652028	• Doubler	4	2024-T3 Clad	0.020	–	Replace
	2652028	• Latch Channel	1	2024-T42 Clad	0.032	–	Replace
	2652025	• Shim, Laminated	1	1	–	–	Replace
	2652025	• Clip Angle	1	S-654	–	–	Replace
	2652025	• Clip Angle	1	S-568	–	–	Replace
	2652025	• Bearing Plate	1	2024-T3 Clad	0.032	–	Replace
7	2652028	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
8	2652025	• Longeron	1	2024-T42 Clad	0.040	–	Replace
	2652025	• Doubler, Side	1	2024-T3 Clad	0.040	–	Replace
	2652028	• Doubler (Outbd.)	1	304 Stainless	0.018	F17-6	Replace
	2652028	• Doubler (Inbd.) 2	1	304 Stainless	0.018	F17-6	Replace
9	2652028	• Latch Channel	1	2024-T42 Clad	0.032	–	Replace
	2652025	• Clip Angle	1	S-654	–	–	Replace
	2652025	• Clip Angle	1	S-568	–	–	Replace
	2652025	• Bearing Plate	1	2024-T3 Clad	0.032	–	Replace
	2652025	• Shim, Laminated	1	1	–	–	Replace
10	2652028	• Stiffener	1	2024-T42 Clad	0.025	–	Replace
	2652025	• Doubler, Aft	1	2024-T42 Clad	0.040	–	Replace
11	2652028	• Doubler 2	1	304 Stainless	0.018	F17-6	Replace
12	2652025	• Scupper Assy	1	–	–	–	Replace
	2652025	• • Funnel	1	6061-T6 Al	0.040	–	Replace
	2652025	• • Vent Tube	1	6061-T6 Al	0.040	–	Replace
13	2652112	• Air Vent, Generator Exhaust	5	2024-T42 Clad	0.032	–	Replace
14	2652111	• Door (2 ea.)	7	2024-T42 Clad	0.032	–	Replace
	2652111	• Plug (2 ea.)	7	2024-T42 Clad	0.032	–	Replace
	2652113	• Mount (2 ea.)	7	2024-T42 Clad	0.050	–	Replace

Lower Cowl Assembly Repair Index
Figure 1 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	3152001	• Air Exit Instl., Lower Engine Nac.	6	–	–	–	–
	3152001	• • Air Vent	6	2024-T42 Clad	0.032	–	Replace
16	3152000	• Exit Inst., Generator Cooling	6	–	–	–	–
	3152000	• • Plate	6	6061-T6	0.063	–	Replace
	3152000	• • Wall	6	6061-T6	0.040	–	Replace
	3152000	• • Ramp	6	6061-0	0.030	–	Replace
	3152000	• • Skin	6	6061-T6	0.050	–	Replace
	3152000	• • Doubler	6	6061-T6	0.040	–	Replace
	3152000	• • Doubler	6	321 Stainless ③	0.016	–	Replace
17	3152002	• Air Inlet Instl., Lower Engine Nac.	6	–	–	–	–
	3152002	• • Duct	6	6061-0	0.032	–	Replace
	3152002	• • Lip	6	S639	–	–	Replace
	3152002	• • Filler	6	2024-T3 Clad	0.032	–	Replace

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	35-002 THRU 35-005; 36-002 & 36-003
3	35-006 AND SUBSEQUENT; 36-004 AND SUBSEQUENT
4	35-354 AND SUBSEQUENT; 36-046 AND SUBSEQUENT
5	35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
6	31-001 AND SUBSEQUENT
7	35-028, 35-031 AND SUBSEQUENT; 36-014, 36-017 AND SUBSEQUENT; 31-001 AND SUBSEQUENT

NOTES:

① Laminated shim stock, per MIL-S-22499, 2024 aluminum, 0.002 or 0.003 lamination, Comp 1, Type 1, Class 2.

② Fay surface seal per Chapter 51.

③ 321 Stainless Condition A.

Lower Cowl Assembly Repair Index
Figure 1 (Sheet 3 of 3)

LOWER COWL ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the lower cowl assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

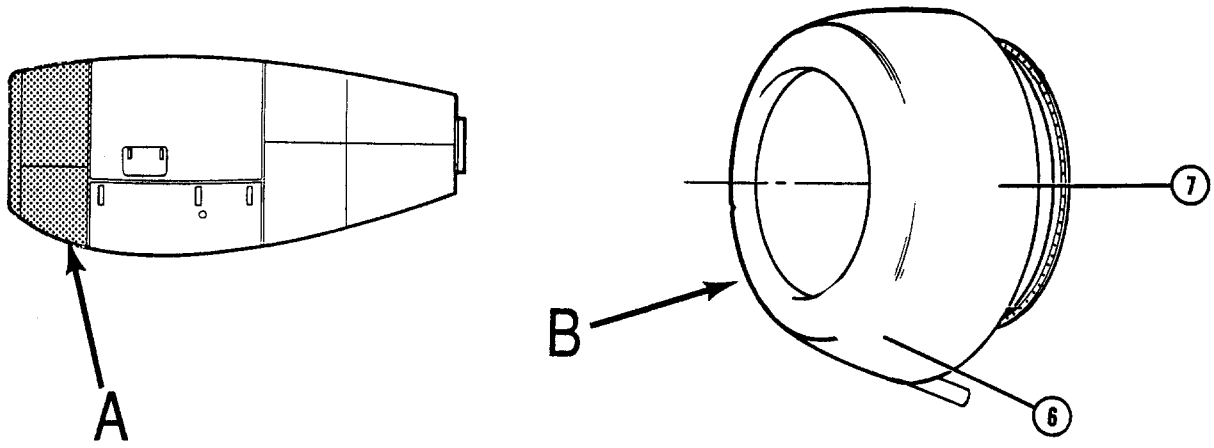
LOWER COWL ASSEMBLY - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the lower cowl assembly.

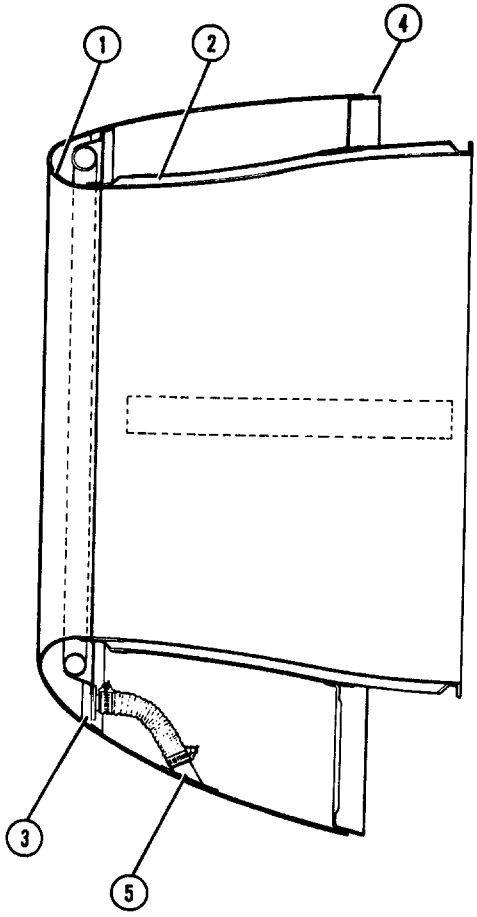
ENGINE INLET ASSEMBLY - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The engine inlet assembly consists of a stainless steel inlet, and inlet duct bond assembly, two bulkhead assemblies, and an outside skin covering.
   B. The engine inlet assembly repair index (Figure 1) is provided to aid maintenance personnel in locating and identifying structural components.

ENGINE INLET ASSEMBLY - STRUCTURAL IDENTIFICATION



Detail A



Detail B

Engine Inlet Assembly Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652010	Engine Inlet Assy., LH/RH	1	–	–	–	–
1	2652010	• Skin, Nose [1]	1	301 Stainless [2]	0.032	–	54-30-10
	2652010	• Doubler	2	301 Stainless [4]	0.032	–	Replace
	2652010	• Splice Doubler, Upper	1	301 Stainless [3]	0.032	[5]	Replace
	2652010	• Splice Doubler, Lower	1	301 Stainless [3]	0.032	[5]	Replace
2	2652010	• Inlet Duct Bond Assy.	1	–	–	–	Replace
3	2652012	• Bulkhead Instl.	1	–	–	–	–
	2652012	• • Bulkhead	1	321 Stainless [2]	0.032	–	51-70-03
	2652012	• • Ring	1	321 Stainless [2]	0.032	–	Replace
	2652012	• • Spray Tube (1.25 OD x 0.035 Wall)	1	321 Stainless [2]	–	–	Replace
	2652012	• • Boss	1	321 Stainless [2]	0.750	–	Replace
	2652012	• • Tube, Transition (2 ea.)	1	321 Stainless [2]	0.032	–	Replace
	2652012	• • Tube (1.00 OD x 0.032 Wall)	1	321 Stainless [2]	0.032	–	Replace
	2652012	• • Adapter	3	321 Stainless [2]	0.025	–	Replace
4	2652015	• Bulkhead Instl.	1	–	–	–	–
	2652015	• • Bulkhead, Upper	1	2024-T42 Clad	0.032	–	51-70-03
	2652015	• • Bulkhead, Lower	1	2024-T42 Clad	0.032	–	51-70-03
	2652015	• • Splice Doubler (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2652015	• • Door	1	2024-T3 Clad	0.063	–	Replace
	2652015	• • Angle	1	2024-T42 Clad	0.032	–	Replace
	2652015	• • Shim	1	321 Stainless [2]	0.040	[5]	Replace
	2652015	• • Rub Strip	1	321 Stainless [2]	0.032	[5]	Replace
	2652015	• • Rub Strip	1	2024-T42 Clad	0.032	–	Replace
	2652015	• • Bracket Clip (A/R)	1	AN743-13	–	–	Replace
	2652015	• • Receptacle (A/R)	1	244-16SD	–	–	Replace
	2652015	• • Shim (2 ea.)	4	2024-T42 Clad	0.020	–	Replace
	2652015	• • Shim	5	2024-T42 Clad	0.040	–	Replace
	2652015	• • Shim (2 ea.)	6	2024-T42 Clad	0.040	–	Replace
	2652015	• • Clip Assy.	7	S-633	–	–	Replace
	2652015	• • Receptacle (A/R)	8	212-12N	–	–	Replace
5	2652017	• Tube (1.00 OD x 0.035 Wall)	1	321 Stainless [2]	–	–	Replace
	2652017	• Plate	1	321 Stainless [2]	0.032	[5]	Replace
	2652017	• Plate	1	321 Stainless [2]	0.032	[5]	Replace
	2652017	• Tube (1.00 OD x 0.035 Wall)	1	321 Stainless [2]	–	–	Replace
6	2652016	• Air Inlet, Gen. Cooling, LH/RH	9	3MAF-114FR [6]	–	–	Replace
	2652016	• Strip	9	2024-T3 Clad	0.032	–	Replace
	2652016	• Strip	9	2024-T3 Clad	0.032	–	Replace
	2652016	• Strip	9	2024-T3 Clad	0.032	–	Replace
	3152003	• Scoop Inst., Gen. Cooling Inlet	10	–	–	–	–
	3152003	• • Inlet Duct	10	3MAF-114FR [6]	–	–	Replace
	3152003	• • Door	10	2024-T42 Clad	0.032	–	Replace
	3152003	• • Doubler	10	2024-T42 Clad	0.040	–	Replace
	3152003	• • Flange Doubler	10	2024-T42 Clad	0.040	–	Replace

Engine Inlet Assembly Repair Index
Figure 1 (Sheet 2 of 3)

Learjet

TEMPORARY REVISION NO. 54-1

MANUAL AFFECTED: Learjet 20/30 Series Aircraft Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to 54-30-10, page 4, dated May 15/92, and retain until further notice.

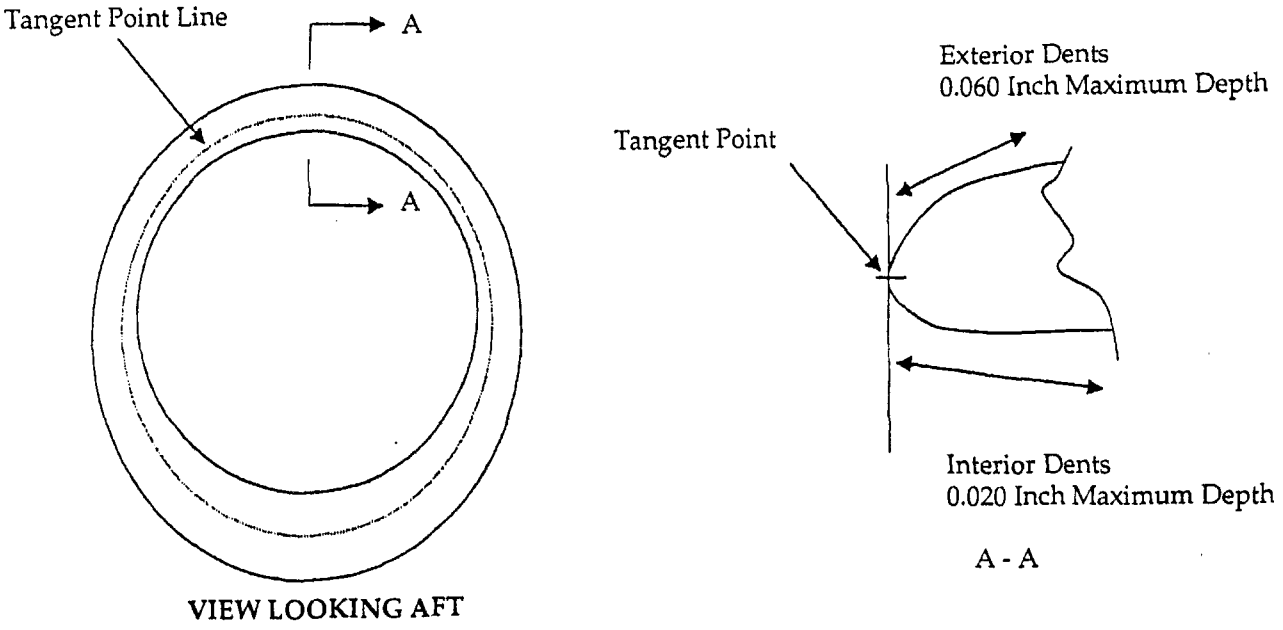
REASON: Revised Allowable Damage Limits for dents in Engine Inlet Assembly and added Figure 102.

INSTRUCTIONS: Add revised item E., Dents, and Figure 102 as follows:

ENGINE INLET ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

E. Dents (See Figure 102.)
   (1) Dents located on the inlet leading edge may adversely affect engine performance and fatigue life of engine fan blades.
   (2) Dent allowables in the inlet leading edge is divided into two sections as defined by the tangent, or very leading edge point. All dents must be smooth and free creases.
   (3) Contact Learjet Field Service if engine performance discrepancies are noted with any dent present in the inlet leading edge.



Dent Location	Acceptable as - is	Acceptable with Restrictions 2	Contact Learjet Field Service Representative if dent is:
Inside Tangent	Less than 0.020 Inch	0.020 to 0.060 Inch 3	Greater than 0.060 Inch
Outside Tangent	Less than 0.060 Inch	0.060 to 0.100 Inch 4	Greater than 0.100 Inch

DENT ALLOWABLE CRITERIA 1

1 All dents must be smooth with no cracks or creases.

2 Affected engine must be making rated power for the day without any surges, imbalances, compressor stalls or other engine discrepancies.

3 Dents must be repaired within 300 Flight Hours.

4 Dents must be repaired at next engine MPI.

Engine Inlet Lip Skin Dent Criteria
Figure 102

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
7	2652010	• Skin, Outer, RH [1]	5	301 Stainless [2]	0.025	–	51-70-02
	2652010	• Skin, Outer, LH [1]	5	301 Stainless [2]	0.025	–	51-70-02
	2652010	• Skin, Outer, RH [1]	11	301 Stainless [2]	0.032	–	51-70-02
	2652010	• Skin, Outer, LH [1]	11	301 Stainless [2]	0.032	–	51-70-02
	2652010	• Skin, Outer (Lower)	5	2024-T42 Clad	0.025	[7]	51-70-02
	2652010	• Skin, Outer (Lower)	11	2024-T42 Clad	0.032	[7]	51-70-02
	2652010	• Skin, Outer (Upper)	5	2024-T42 Clad	0.025	[7]	51-70-02
	2652010	• Skin, Outer (Upper)	11	2024-T42 Clad	0.032	[7]	51-70-02
	2652010	• Splice Doubler, RH	1	2024-T42 Clad	0.032	–	Replace
	2652010	• Clip Angle, (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652010	• Doubler	1	2024-T42 Clad	0.050	–	Replace

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	35-225 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
3	35-021, 35-023 THRU 35-026, 35-028 AND SUBSEQUENT; 36-007, 36-014 AND SUBSEQUENT
4	35-051 AND SUBSEQUENT; 36-017 AND SUBSEQUENT
5	35-002 THRU 35-005; 36-002 THRU 36-003
6	35-006 AND SUBSEQUENT; 36-004 AND SUBSEQUENT
7	35-088 AND SUBSEQUENT; 36-023 AND SUBSEQUENT
8	35-186 AND SUBSEQUENT; 36-039 AND SUBSEQUENT
9	35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
10	31-001 AND SUBSEQUENT
11	31-001 AND SUBSEQUENT; 35-006 AND SUBSEQUENT; 36-004 AND SUBSEQUENT

NOTES:

[1] Optional to use 321 Stainless Annealed.

[2] Condition Annealed.

[3] Condition Full Hard.

[4] Condition 1/4 Hard.

[5] Apply dissimilar metal protection to stainless steel surfaces contacting dissimilar metal per Chapter 51.

[6] Three layers of pre-pregnated adhesive fabric, 3MAF-114FR or equivalent; Narmco 550-181 (Type C), Narmco Div., Whittaker Corp.; 9702-181 (Type C) Shell Chemical Co.; HHM2.1 (Type 2) 181 weight epoxy glass, H & H Parts Co., Wichita, KS.

[7] Finish F14-1 interior only

Engine Inlet Assembly Repair Index
Figure 1 (Sheet 3 of 3)

ENGINE INLET ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the engine inlet assembly strucure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents in the inlet nose are permissible, if smooth and without abrupt changes in contour, do not exceed 0.010 inch (0.254 mm) in depth (0.002 inch/inch maximum rate of change).
   (2) Dents in the remaining structure are permissible, if smooth and without abrupt changes in contour, do not exceed 0.06 inch (1.52 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.050 inch (12.7 mm) to a rivet or structural area.
   (3) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.
   (4) Repairs to the inlet duct bond assembly shall not exceed an "as completed" repair area of three (3) square inches in the perforated inner skin and core.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

ENGINE INLET ASSEMBLY - REPAIR

1. APPROVED REPAIRS
   A. If replacement of the engine inlet nose skin is required, refer to SSK-992, "Replacement of Engine Inlet Nose Skin".
   B. Repair of Nacelle Inlet Duct Band Assembly. (See Figure 201.)

      CAUTION: THIS REPAIR PROCEDURE IS EXTREMELY CRITICAL. POOR WORKMANSHIP CANNOT BE TOLERATED AS IT COULD ADVERSELY AFFECT ENGINE PERFORMANCE.

      (1) Tools and equipment

          NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Methyl Ethyl Ketone	(MEK)	Commercially available	Cleaning
Clean cotton cloth or cheesecloth		Commercially available	Cleaning
Ultrasonic inspection equipment	Sandicator 52B		Inspecting damaged area
Air motor	Dotco 10L1200B	Commercially available	Routing and surface machining
Vacuum cleaner		Commercially available	
Masking tape		Commercially available	Masking
Brown wrapping paper		Commercially available	Masking
Adhesive	Hysol EA9330.3	Hysol Division of the Dexter Corp. Pittsburgh, CA	Filling repair area
Abrasive nylon pad	Scotchbrite	3M	Polishing
Abrasive paper	220 grit aluminum oxide	Commercially available	Sanding
Filter, compressed air			Drive air motor

NAME	PART NUMBER	MANUFACTURER	USE
Extrusion gun, cartridge, nozzle	950	Pyles Ind., Inc. Detroit, Michigan	Applying adhesive
Permanent ink marker		Magic Marker	Mark damage

(2) Using visual inspection, ultrasonic equipment, coin tap test, or other suitable non-destructive testing method, examine area for skin fracture or deformation, core fracture, crippling, or bond fracture, and de-bond of skin and core.
(3) Outline damage area with permanent ink marker.
(4) Determine whether damage area is 3 square inches or less. If damage area is greater than 3 square inches, replace bonded inlet nacelle. If damage area is within tolerance, proceed as follows:
(5) Mask off engine inlet opening and entire perforated inner skin except for 1/4 inch around outlined damage area.
(6) Using air motor, machine out damage area.
(7) Ensure that all fracture and/or de-bonded core and perforated skin material is removed.

NOTE:
- The core does not have to be cut out completely down to the opposite skin.
- Crippled core does not have to be removed providing the adhesive bond is still secure.

(8) Use vacuum to remove all cuttings and debris.
(9) Using clean, cotton cloth or cheesecloth dampened in MEK, thoroughly scrub remaining unmasked skin around damage area.
(10) Using abrasive nylon pad or abrasive paper, abrade cleaned skin around damage area. Reclean area with vacuum.
(11) Reclean around damage area with clean cotton cloth or cheesecloth dampened with MEK. Thoroughly remove MEK from surface by wiping with cotton material. Do not allow MEK to air dry as a residue will remain which will prevent proper bonding of adhesive.
(12) Add 33 parts by weight of EA9330.3 Part B (light yellow) into 100 parts by weight of EA9330.3 Part A (gray) and thoroughly mix until components blend into a uniform, gray paste.

NOTE:
- Mix no more material than can be used within 20 minutes.
- Cease mixing as soon as paste color is uniform; overmixing will accelerate cure and reduce application time.

(13) Transfer mixed material to an extrusion gun polyethylene cartridge and install cartridge in extrusion gun.
(14) Using nozzle as required, inject adhesive into routed damage area. Start at center of cutout and work in an expanding circle until entire bottom skin surface and any remaining core in cutout are completely coated with adhesive. (See Figure 201, Detail B.)
(15) Apply masking tape to cover complete work area, overlapping previously applied masking material.
(16) Make a hole in center of tape large enough to accept nozzle.

(17) Insert nozzle thru hole and continue extruding adhesive until machined area is overfilled. (See Figure 201, Detail B.)

CAUTION: **DO NOT EXCEED 175°F (79°C) CURE TEMPERATURE LIMIT. TEMPERATURES IN EXCESS OF 175° F (79°C) CAN DAMAGE BONDED ASSEMBLY.**

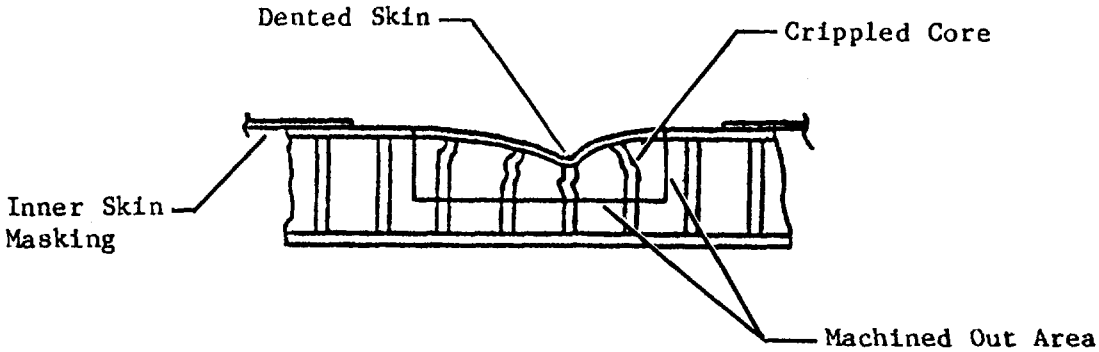
NOTE: If there is insufficient material to be machined to contour following cure. the entire process must be repeated.

(18) Allow adhesive to cure at room temperature (77°F [25°C]) for 24 hours or accelerate cure at 150° to 175°F (65° to 79°C) for 4 hours.

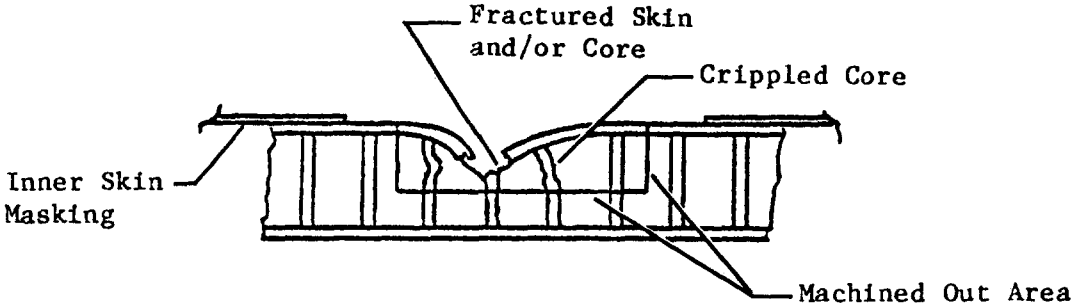
CAUTION: **REMOVING TOO MUCH ADHESIVE WILL NECESSITATE REPEATING ENTIRE REPAIR PROCESS.**

(19) Using air motor, abrasive nylon pad, and abrasive paper, machine cured adhesive to achieve correct contour blended smoothly into adjacent structure. Surface of repair areas shall be within a tolerance of 0.006 inch (.152 mm) below design contour. No further finish is required.

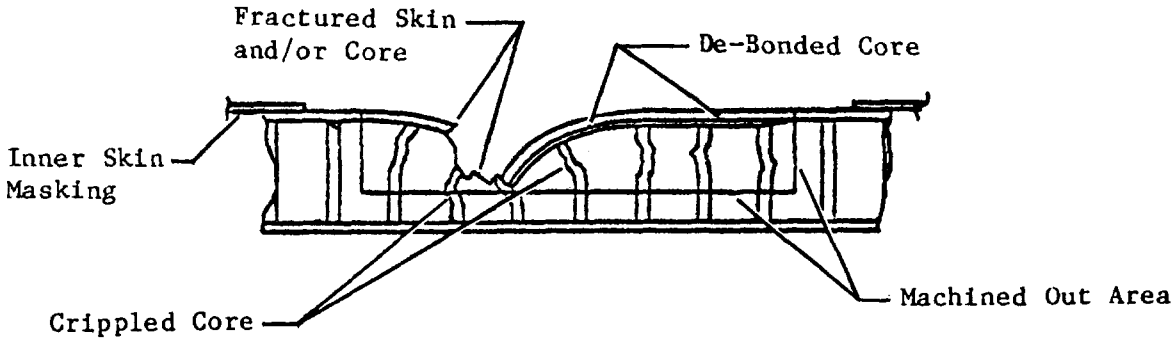
(20) If proper contour has not been achieved, rout all adhesive from repaired area and repeat entire procedure.



Skin Dent and Crippled Core

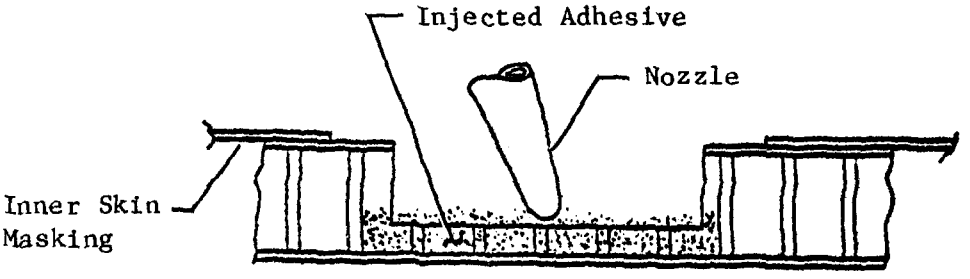


Skin Fracture and Crippled Core

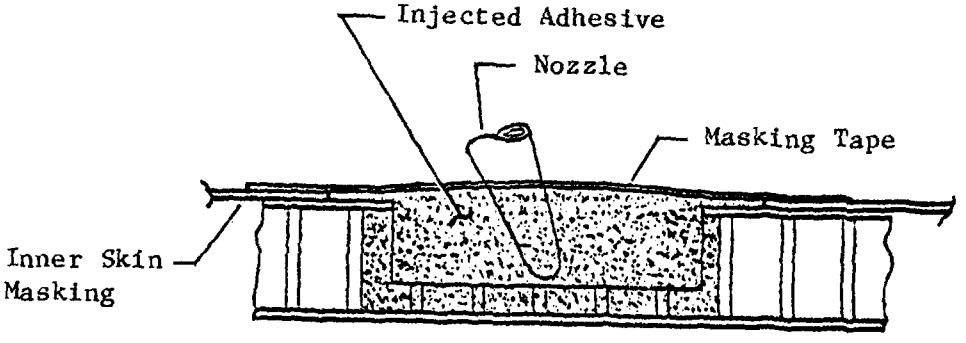


SKIN FRACTURE AND FRACTURED, CRIPPLED, AND/OR DE-BONDED CORE

Engine Inlet Repair
Figure 201 (Sheet 1 of 2)



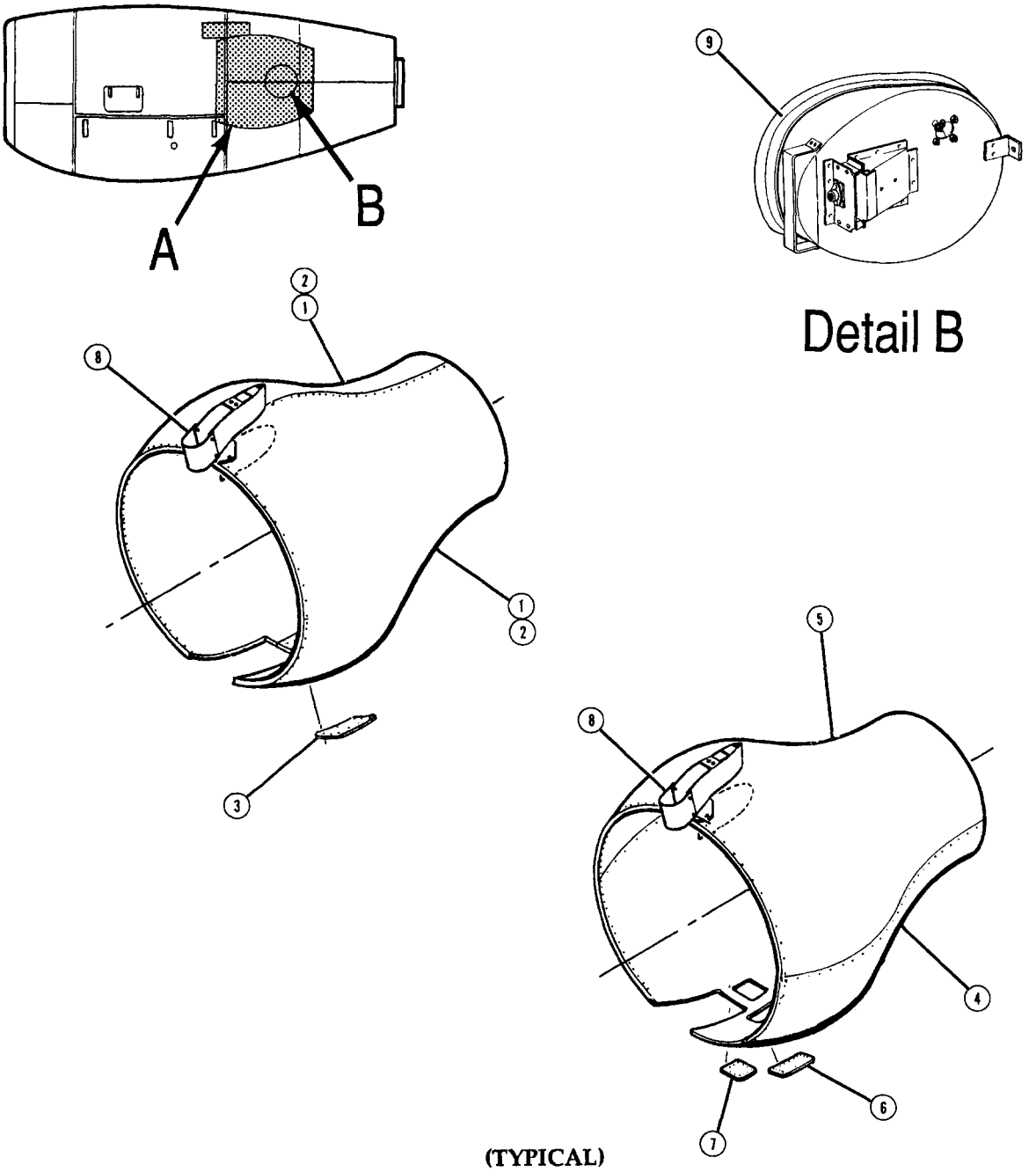
Detail A



Detail B

Engine Inlet Repair
Figure 201 (Sheet 2 of 2)

DUCT ASSEMBLY, FAN, EXHAUST AND INNER WALL - STRUCTURAL IDENTIFICATION



7-30C

Duct Assembly, Fan, Exhaust and Inner Wall Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652035	Fan Exhaust Duct Assy., LH/RH	1	–	–	–	–
	2652037	Fan Exhaust Duct Assy., LH/RH	2	–	–	–	–
1	2652035	• Duct Half Weld Assy., Inbd.	1	–	–	–	–
	2652035	• • Duct Retainer, Upper/Lower	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Aft	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Lower (LH Duct)	1	321 Stainless (2)	0.020	–	Replace
	2652035	• • Doubler, Lower (RH Duct)	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Fwd.	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Strap, Upper/Lower	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Duct Half	1	321 Stainless (2)	0.025	–	Replace
2	2652035	• Duct Half Weld Assy., Outbd.	1	–	–	–	–
	2652035	• • Duct Retainer, Upper/Lower	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Aft	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Lower (LH Duct)	1	321 Stainless (2)	0.020	–	Replace
	2652035	• • Doubler, Lower (RH Duct)	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Fwd.	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Strap, Upper/Lower	1	321 Stainless (2)	0.025	–	Replace
	2652035	• • Duct Half	1	321 Stainless (2)	0.025	–	Replace
	2652035	• Doubler	1	321 Stainless (2)	0.025	–	Replace
	2652035	• Doubler	1	321 Stainless (2)	0.032	–	Replace
3	2652035	• Door	1	321 Stainless (2)	0.025	–	Replace
4	2652037	• Duct Half Weld Assy., Lower	2	–	–	–	–
	2652037	• • Doubler, Lower (3 ea.)	2	321 Stainless (2)	0.025	–	Replace
	2652037	• • Doubler, Fwd., Lower (2 ea.)	2	321 Stainless (2)	0.025	–	Replace
	2652037	• • Duct Half	2	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Aft	2	321 Stainless (2)	0.025	–	Replace
5	2652037	• Duct Half Weld Assy., Upper	2	–	–	–	–
	2652037	• • Duct Retainer	3	321 Stainless (2)	0.025	–	Replace
	2652037	• • Doubler	2	321 Stainless (2)	0.025	–	Replace
	2652037	• • Doubler, Upper	2	321 Stainless (2)	0.025	–	Replace
	2652037	• • Doubler, Fwd. Upper	2	321 Stainless (2)	0.025	–	Replace
	2652037	• • Strap (3 ea.)	2	321 Stainless (2)	0.025	–	Replace
	2652037	• • Duct Half	2	321 Stainless (2)	0.025	–	Replace
	2652035	• • Doubler, Aft	2	321 Stainless (2)	0.025	–	Replace
6	2652035	• Door	2	321 Stainless (2)	0.025	–	Replace
7	2652035	• Door	4	321 Stainless (2)	0.025	–	Replace
8	2652074	• Nosecap	5	321 Stainless	0.040	–	Replace
	2652074	• Channel (2 ea.)	5	321 Stainless	0.040	–	Replace
	2652074	• Fairing	5	321 Stainless	0.040	–	Replace

Duct Assembly, Fan, Exhaust and Inner Wall Repair Index
Figure 1 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
9	2652036	• Shroud Assy., LH/RH	5	[1]	–	–	–
	2652036	• • Pan	5	301 Stainless [4]	0.025	–	Replace
	2652036	• • Safety Lock Support	5	301 Stainless [4]	0.025	–	Replace
	2652036	• • Support Angle (2 ea.)	5	301 Stainless [4]	0.025	–	Replace
	2652036	• • Nutplate Spacer	5	301 Stainless [4]	0.050	–	Replace
	2652036	• • Safety Lock Channel	5	301 Stainless [4]	0.025	–	Replace
	2652021	• • Support Channel (2 ea.)	5	301 Stainless [4]	0.025	–	Replace
	2652021	• • Support Angle (2 ea.)	5	301 Stainless [3]	0.040	–	Replace
	–	• • Clip	6	AN743C13	–	–	Replace

CODES **EFFECTIVITIES**

1	35-002 THRU 35-035, EXCEPT 35-028, 35-033 AND 35-034; 36-002 THRU 36-016, EXCEPT 36-014
2	31-001 AND SUBSEQUENT; 35-028, 35-033, 35-034, 35-036 AND SUBSEQUENT; 36-014, 36-017 AND SUBSEQUENT
3	35-028, 35-033, 35-034, 35-036 THRU 35-048; 36-014
4	31-001 AND SUBSEQUENT; 35-049 AND SUBSEQUENT; 36-017 AND SUBSEQUENT
5	31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
6	31-001 AND SUBSEQUENT; 35-245 AND SUBSEQUENT; 36-045 AND SUBSEQUENT

NOTES:

[1] Optional to use 321 stainless annealed.

[2] Condition annealed.

[3] Condition 1/4 hard.

[4] Condition 1/2 Hard.

Duct Assembly, Fan, Exhaust and Inner Wall Repair Index
Figure 1 (Sheet 3 of 3)

DUCT ASSEMBLY, FAN, EXHAUST AND INNER WALL - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the duct assembly, fan, exhaust and inner wall is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

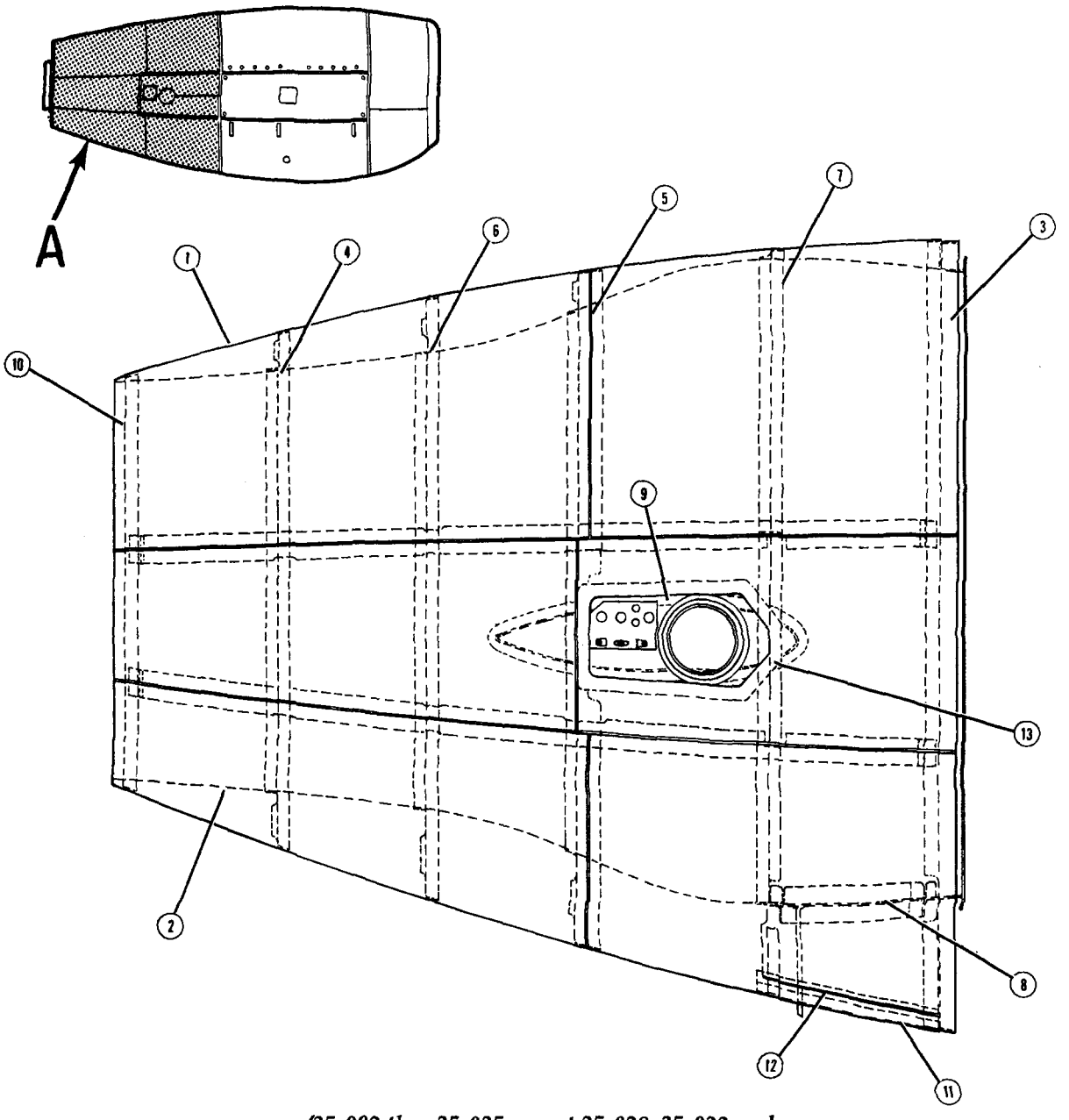
H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

DUCT ASSEMBLY, FAN, EXHAUST AND INNER WALL - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the duct assembly.

ENGINE NACELLE AFTERBODY - STRUCTURAL IDENTIFICATION



(35-002 thru 35-035 except 35-028, 35-033 and 35-034; 36-002 thru 36-016, except 36-014)

Detail A

Engine Nacelle Afterbody Repair Index
Figure 1 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652040	Engine Nacelle					
		Afterbody Assy., LH & RH	1	–	–	–	Replace
1	2652040	• Skin, Lower Outer Fwd.	1	2024-T42 Clad	0.025	7	Replace
	2652040	• Skin, Upper Outer Fwd.	1	2024-T42 Clad	0.025	7	Replace
	2652040	• Skin, Upper Outer Aft	1	2024-T42 Clad	0.025	7	Replace
	2652040	• Skin, Lower Outer Aft	1	2024-T42 Clad	0.025	7	Replace
	2652040	• Skin, Center	1	321Stainless 2	0.020	5	Replace
	2652040	• Doubler Door	1	2024-T42 Clad	0.032	7	Replace
	2652040	• Bracket (6 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2652040	• Splice Doubler (3 ea.)	1	2042-T42 Clad	0.032	–	Replace
	2652040	• Doubler Door (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652040	• Former Door (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
2	2652040	• Afterbody Frame Assy.	1	–	–	–	Replace
	2652040	• • Skin, Inner Aft	1	2024-T42 Clad	0.025	–	Replace
	2652040	• • Skin, Inner Fwd. (2 ea.)	1	2024-T42 Clad	0.025	–	Replace
3	2652046	• • Bulkhead Inst.	1	–	–	–	–
	2652046	• • • Frame	1	2024-T42 Clad	0.032	–	Replace
	2652046	• • • Splice Plate	1	2024-T42 Clad	0.032	–	Replace
	2652046	• • • Splice Plate	1	321Stainless 2	0.032	–	Replace
	2652046	• • • Shim	1	2024-T42 Clad	0.040	–	Replace
	2652046	• • • Shim	1	321Stainless 2	0.040	–	Replace
	2652047	• • • Flange Assy.	1	–	–	–	Replace
	2652047	• • • • Flange (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2652046	• • • • Splice Plate (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652046	• • • • Splice Plate (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
4	2652042	• • Bulkhead Inst.	1	–	–	–	–
	2652042	• • • Frame	1	2024-T42 Clad	0.032	–	Replace
	2652018	• • • Shim (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
5	2652043	• • Bulkhead Inst.	1	–	–	–	–
	2652043	• • • Frame	1	2024-T42 Clad	0.032	–	Replace
	2652018	• • • Shim (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
6	2652044	• • Bulkhead Inst.	1	–	–	–	–
	2652044	• • • Frame	1	2024-T42 Clad	0.032	–	Replace
	2652018	• • • Shim (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
7	2652050	• • Bulkhead Inst.	1	–	–	–	–
	2652044	• • • Frame	1	2024-T42 Clad	0.032	–	Replace
	2652018	• • • Shim (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2652046	• • Receptacle (4 ea.)	1	244-16SD	–	–	Replace

Engine Nacelle Afterbody Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
8	2652040	• Door Assy.	2	–	–	–	Replace
	2652040	• • Clip (2 ea.)	2	2024-T42 Clad	0.063	–	Replace
	2652040	• • Stiffener Angle	2	2024-T42 Clad	0.032	–	Replace
	2652040	• • Stiffener Angle	2	6061-T6 [1]	0.032	–	Replace
	2652040	• • Inner Door	2	2024-T42 Clad	0.025	–	Replace
	2652040	• • Outer Door	2	2024-T42 Clad	0.025	–	Replace
	2652040	• • Drain Tube	2	6061 Tube 1/4 O.D.	–	–	Replace
	2652040	• Door Assy.	3	–	–	–	Replace
	2652040	• • Door Pan	3	2024-T42	0.025	F14-1ext F1int	Replace
	2652040	• • Door Skin	3	2024-T42	0.040	–	Replace
	2652040	• • Tube Assy.	3	–	–	–	Replace
	2652040	• • • Tube	3	5052-0	0.035	–	Replace
	2652040	• • • Plate	3	5052-0	0.032	–	Replace
	2652040	• • Angle (4 ea.)	3	2024-T42	0.040	–	Replace
9	2652045	• Fairing Assy.	1	–	–	–	Replace
	2652045	• • Fairing, Upper	1	321Stainless [2]	0.025	–	Replace
	2652045	• • Fairing, Lower	1	321Stainless [2]	0.025	–	Replace
10	2652056	• *Closure Ring*	1	*2042-T42 Clad*	*0.032*	–	*Replace*
11	2652040	• Door Assy.	1	–	–	–	Replace
	2652040	• • Door	1	2042-T3 [4]	0.025	–	Replace
	2652040	• • Doubler	1	2042-T3 Clad	0.032	–	Replace
	2652040	• • Seal	1	[6]	0.062	–	Replace
12	2652053	• Spacer	1	Phenolic [3]	0.625	–	Replace
13	2652051	Door Assy., Upper	1	–	–	–	Replace
	2652051	• Door, Upper	1	301Stainless [2]	0.020	F17	Replace
	2652051	• Rub Plate, Upper	1	301Stainless [2]	0.020	F17	Replace
	2652051	• Spacer, Upper	1	301Stainless [2]	0.025	F17	Replace
	2652051	• Seal Retainer, Upper	1	301Stainless [2]	0.020	F17	Replace
	2652051	• Doubler Assy.	1	–	–	–	Replace
	2652051	• • Plate	1	301 Stainless [8]	0.025	–	Replace
	2652051	Door Assy., Lower	1	–	–	–	Replace
	2652051	• Door, Lower	1	301Stainless [2]	0.020	F17	Replace
	2652051	• Rub Plate, Lower	1	301Stainless [2]	0.020	F17	Replace
	2652051	• Spacer, Lower	1	301Stainless [2]	0.025	F17	Replace
	2652051	• Seal Retainer, Lower	1	301Stainless [2]	0.020	F17	Replace
	2652051	• Doubler Assy.	1	–	–	–	Replace
	2652051	• • Plate	1	301 Stainless [8]	0.025	–	Replace
	2652051	Seal	1	301 Stainless [8]	0.020	–	Replace

Engine Nacelle Afterbody Repair Index
Figure 1 (Sheet 3 of 4)

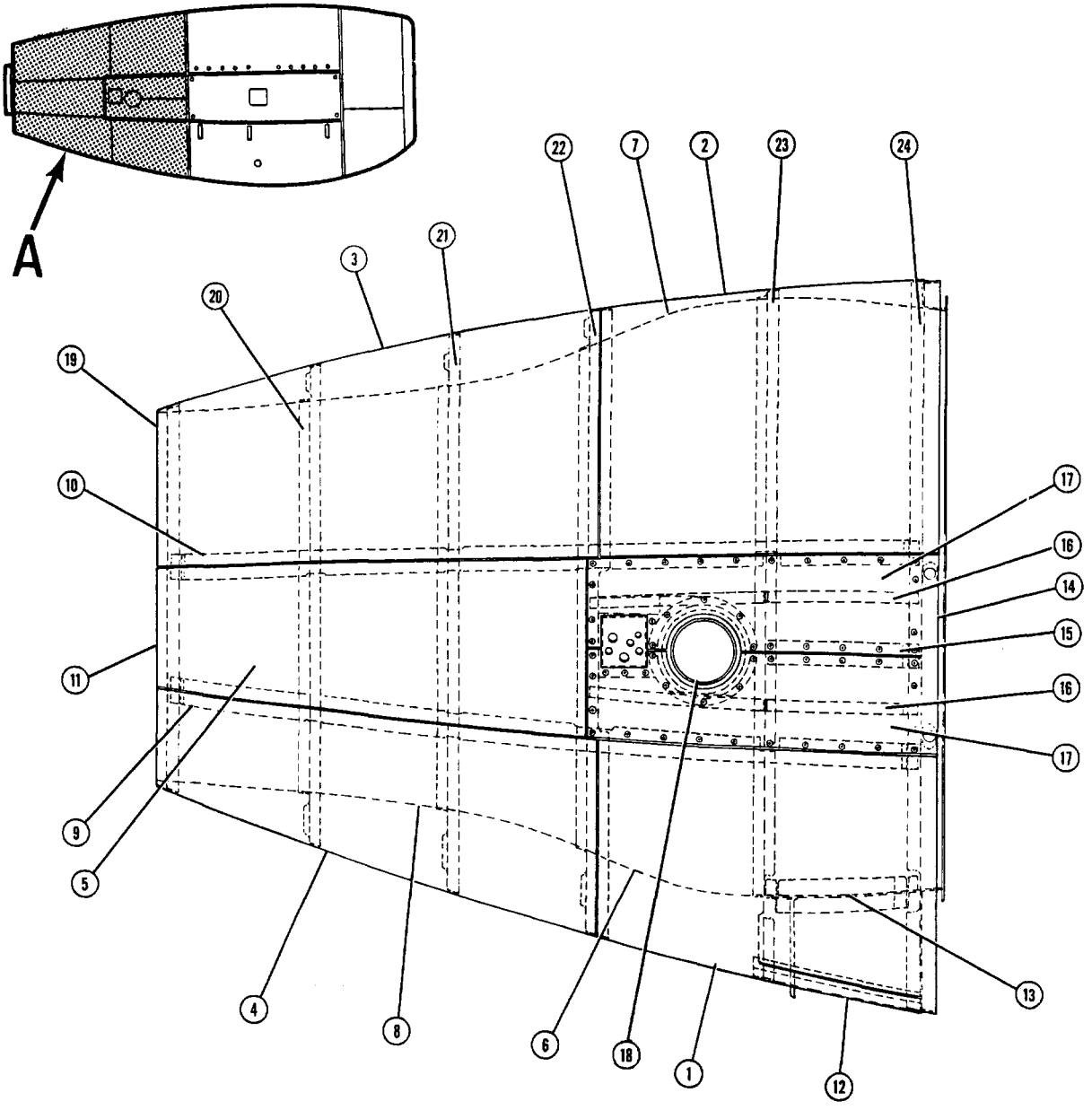
CODES	EFFECTIVITIES
1	35-002 THRU 35-035 EXCEPT 35-028, 35-033, AND 35-034; 36-002 THRU 36-016, EXCEPT 36-014
2	35-002 THRU 35-025, 35-027, 35-029 AND 35-030; 36-002 THRU 36-016, EXCEPT 36-014
3	35-026, 35-031 THRU 35-035 EXCEPT 35-033 AND 35-034

NOTES:

1. Optional to heat treat before welding.
2. Condition Annealed.
3. Phenolic sheet, MIL-P-15035, Grade FBG.
4. Optional to use 2024-T3, 0.032.
5. Apply dissimilar metal protection to stainless steel surfaces contacting dissimilar metal per Chapter 51.
6. Neoprene, Class I, Duro 40-60, MIL-S-6855; Rubber Supply Co., Wichita, KS.
7. Finish interior surface F14-1, outer surface to be F1.
8. Condition 1/4 Hard.

Engine Nacelle Afterbody Repair Index
Figure 1 (Sheet 4 of 4)

ENGINE NACELLE AFTERBODY - STRUCTURAL IDENTIFICATION



(35-028, 35-033, 35-034, 35-036 and Subsequent;
36-014, 36-017 and Subsequent; 31-001 and Subsequent)

Detail A

7-36C

Engine Nacelle Afterbody Repair Index
Figure 2 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652100	Engine Nacelle Afterbody Assy., LH and RH	–	–	–	–	–
1	2652040	• Skin, Lower Outer Fwd	7	2024-T42 Clad	0.020	–	51-70-02
	2652040	• Skin, Lower Outer Fwd	8	2024-T42 Clad	0.032	–	51-70-02
2	2652040	• Skin, Upper Outer Fwd	7	2024-T42 Clad	0.020	–	51-70-02
	2652040	• Skin, Upper Outer Fwd	8	2024-T42 Clad	0.032	–	51-70-02
3	2652040	• Skin, Upper Outer Aft	7	2024-T42 Clad	0.020	–	51-70-02
	2652040	• Skin, Upper Outer Aft	8	2024-T42 Clad	0.032	–	51-70-02
4	2652040	• Skin, Lower Outer Aft	7	2024-T42 Clad	0.020	–	51-70-02
	2652040	• Skin, Lower Outer Aft	8	2024-T42 Clad	0.032	–	51-70-02
5	2652100	• Skin, Center	1	321 Stainless [1]	0.020	–	51-70-02
6	2652100	• Skin, Inner Lower Fwd	1	2024-T42 Clad	0.025	–	51-70-02
7	2652100	• Skin, Inner Upper Fwd	1	2024-T42 Clad	0.025	–	51-70-02
8	2652040	• Skin, Inner Aft	1	2024-T42 Clad	0.025	–	51-70-02
9	2652100	• Longeron, Lower	1	2025-T42 Clad	0.032	–	Replace
	2652100	• Splice Doubler	1	2024-T42 Clad	0.032	–	Replace
10	2652100	• Longeron, Upper	1	2024-T42 Clad	0.032	–	Replace
	2652100	• Splice Doubler	1	2024-T42 Clad	0.032	–	Replace
11	2652100	• Longeron, Center	1	2024-T42 Clad	0.032	–	Replace
	2652100	• Longeron, Center	2	2024-T42 Clad	0.032	–	Replace
	2652100	• Splice Doubler	3	2024-T42 Clad	0.032	–	Replace
	2652040	• Door Assy.	4	–	–	–	Replace
	2652040	• • Door	4	2024-T3 [2]	0.025	–	Replace
	2652040	• • Doubler	4	2024-T3 Clad	0.032	–	Replace
	2652040	• • Seal	4	[3]	0.062	–	Replace
12	2652100	• Door Assy.	5	–	–	–	Replace
	2652100	• Door	5	2024-T3 Clad	0.025	–	Replace
	2652100	• Doubler	5	2024-T3 Clad	0.032	–	Replace
	2652100	• Doubler	5	2024-T42 Clad	0.032	–	Replace
13	2652040	• Door Assy.	1	–	–	–	–
	2652040	• • Door Pan	1	2024-T42 Clad	0.040	–	Replace
	2652040	• • Door Skin	1	2024-T42 Clad	0.025	–	51-70-02
	2652040	• • Angle (4 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2652040	• • Doubler	6	2024-T42 Clad	0.025	–	Replace
	2652040	• • Tube Assy.	1	–	–	–	Replace
	2652040	• • Tube (0.25 OD x 0.035 Wall)	1	5052-0 Tubing	–	–	Replace
	2652040	• • Tube (TyGon Tubing)	6	0.375 OD x 0.062 wall	–	–	Replace
	2652040	• • Plate	1	5052-0 Sht Al	0.032	–	Replace
	2652100	• • Angle (3 ea.)	3	2024-T42	0.040	–	Replace
14	2652101	• Door Assy., Aft Engine Mount	–	–	–	–	–
	2652101	• • Flange	1	2024-T42 Clad	0.040	–	Replace
	2652101	• • Shim	1	321 Stainless [1]	0.040	–	Replace
	2652101	• • Splice Plate	1	321 Stainless [1]	0.032	–	Replace
	2652101	• • Inner Skin	1	2024-T42 Clad	0.025	–	Replace
	2652101	• • Frame	1	2024-T42 Clad	0.032	–	Replace

Engine Nacelle Afterbody Repair Index
Figure 2 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	2652101	• • Longeron, Center Fwd	1	2024-T42 Clad	0.032	–	Replace
16	2652101	• • Longeron, Lower Fwd	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Longeron, Lower Aft	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Longeron, Upper Fwd	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Longeron, Upper Aft	1	2024-T42 Clad	0.032	–	Replace
17	2652101	• • Door, Lower Outer	1	321 Stainless 1	0.020	–	Replace
	2652101	• • Door, Upper Outer	1	321 Stainless 1	0.020	–	Replace
18	2652105	• • Fire Seal Mount	1	301 Stainless 4	0.032	–	Replace
	2652106	• • Outlet Box	1	321 Stainless 1	0.032	–	Replace
	2652101	• • Seal Retainer	1	321 Stainless 4	0.032	–	Replace
	2652101	• • Spacer	1	321 Stainless 4	0.032	–	Replace
	2652101	• • Filler	1	321 Stainless 4	0.032	–	Replace
	2652045	• • Fairing Assy	1	–	–	–	Replace
	2652045	• • • Fairing, Lower Fwd (2 ea.)	1	321 Stainless 1	0.025	–	Replace
	2652045	• • • Fairing, Upper Fwd (2 ea.)	1	321 Stainless 1	0.025	–	Replace
	2652045	• • • Fairing, Lower Aft (2 ea.)	4	321 Stainless 1	0.025	–	Replace
	2652045	• • • Doubler, Upper Fwd	1	321 Stainless 1	0.025	–	Replace
	2652045	• • • Doubler, Lower Fwd	1	321 Stainless 1	0.025	–	Replace
	2652045	• • • End Retainer	8	321 Stainless 1	0.025	–	Replace
	2652101	• • Attach Angle, Fwd	1	2024-T42 Clad	0.040	–	Replace
	2652101	• • Attach Angle, Aft	1	2024-T42 Clad	0.040	–	Replace
	2652101	• • Doubler, Lower Aft	1	2024-T42 Clad	0.040	–	Replace
	2652101	• • Filler, Fwd	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Retainer	1	321 Stainless 4	0.032	–	Replace
	2652101	• • Filler, Center	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Doubler, Lower Fwd	1	2024-T42 Clad	0.040	–	Replace
	2652101	• • Doubler, Upper Fwd	1	2024-T42 Clad	0.040	–	Replace
	2652101	• • Bulkhead	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Shim	1	2024-T42 Clad	0.032	–	Replace
	2652101	• • Skin Inner	1	2024-T42 Clad	0.025	–	Replace
	2652101	• • Filler, Aft	1	2024-T42 Clad	0.032	–	Replace
19	2652056	• Closure Ring	1	2024-T42 Clad	0.032	–	Replace
20	2652042	• Frame	1	2024-T42 Clad	0.032	–	Replace
	2652018	• Shim	1	2024-T42 Clad	0.032	–	Replace
21	2652044	• Frame	1	2024-T42 Clad	0.032	–	Replace
	2652018	• Shim	1	2024-T42 Clad	0.032	–	Replace
22	2652104	• Frame	1	2024-T42 Clad	0.032	–	Replace
	2652104	• Doubler	1	2024-T42 Clad	0.032	–	Replace
23	2652103	• Frame	1	2024-T42 Clad	0.032	–	Replace
	2652107	• Tension Angle	1	2024-T42 Clad	0.040	–	Replace

Engine Nacelle Afterbody Repair Index
Figure 2 (Sheet 3 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
24	2652102	• Frame	1	2024-T42 Clad	0.032	–	Replace
	2652102	• Splice Plate	1	2024-T42 Clad	0.032	–	Replace
	2652102	• Shim	1	2024-T42 Clad	0.040	–	Replace
	2652108	• Flange, Upper	1	2024-T42 Clad	0.040	–	Replace
	2652108	• Flange, Lower	1	2024-T42 Clad	0.040	–	Replace
	2652047	• Splice Plate	1	2024-T3 Clad	0.032	–	Replace
	2652047	• Splice Plate	1	2024-T42 Clad	0.050	–	Replace

CODES	EFFECTIVITIES
1	35-028, 35-033, 35-034, 35-036 AND SUBSEQUENT; 36-014, 36-017 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
2	35-028, 35-033, 35-034, 35-036 THRU 35-103; 36-014, 36-017 THRU 36-029
3	35-104 AND SUBSEQUENT; 36-030 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
4	35-028, 35-033, 35-034, 35-036 THRU 35-042; 36-014
5	35-043 AND SUBSEQUENT; 36-017 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
6	35-589 AND SUBSEQUENT; 36-054 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
7	35-028, 35-033, 35-034, 35-036 THRU 35-353; 36-014, 36-017 THRU 36-045
8	35-354 AND SUBSEQUENT; 36-046 AND SUBSEQUENT; 31-001 AND SUBSEQUENT

NOTES:

1. Condition Annealed.
2. Optional to use 2024-T3, 0.032.
3. Neoprene, Class I, Duro 40-60, MIL-S-6855; Rubber Supply Co., Wichita, KS.
4. 1/4 Hard Condition

Engine Nacelle Afterbody Repair Index
Figure 2 (Sheet 4 of 4)

ENGINE NACELLE AFTERBODY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the engine nacelle afterbody structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

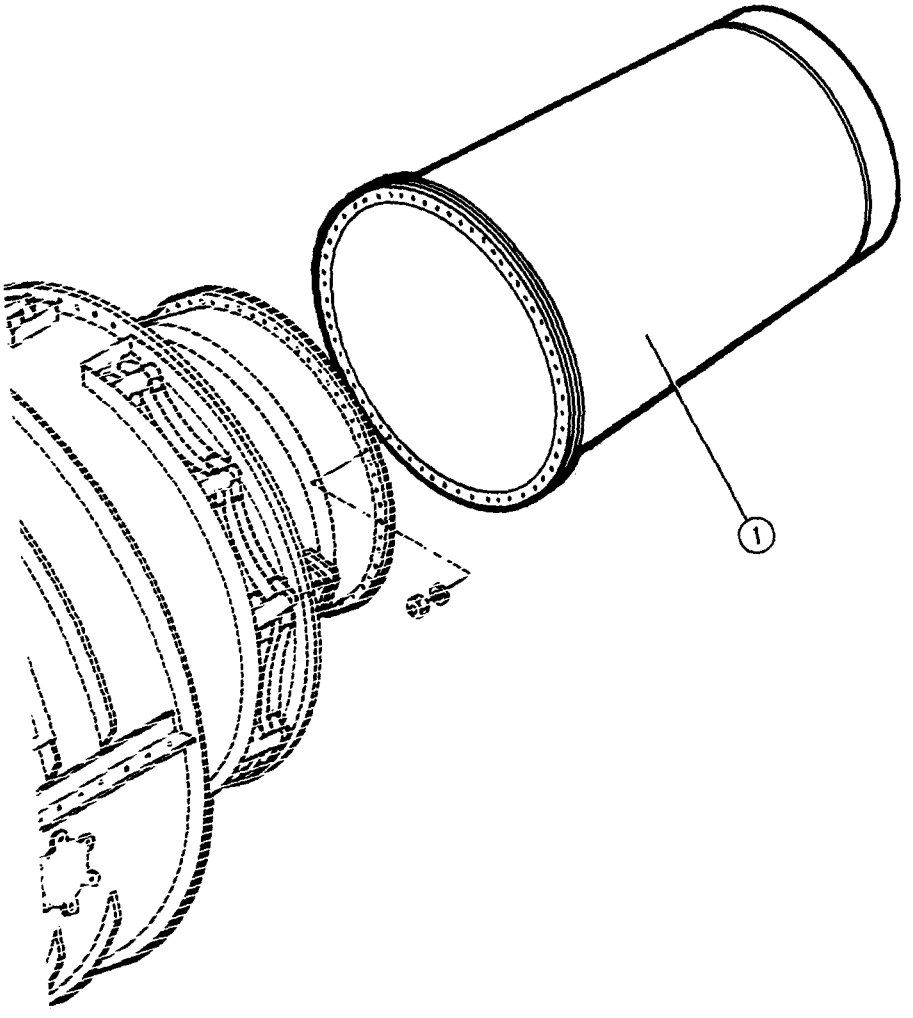
H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

ENGINE NACELLE AFTERBODY - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the nacelle afterbody.

ENGINE EXHAUST NOZZLE ASSEMBLY - STRUCTURAL IDENTIFICATION



Engine Exhaust Nozzle Assembly Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652065	Engine Exhaust Nozzle Assy, LH and RH	1	–	–	–	–
1	2652065	• Cone	1	Hastelloy per AM5 5536	0.025	–	Replace
	2652065	• Ring	1	Hastelloy per AM5 5536	0.032	–	Replace
	2652065	• Support Flange	1	Hastelloy per AM5 5536	0.094	–	Replace

CODES	EFFECTIVITIES
1	31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

Engine Exhaust Nozzle Assembly Repair Index
Figure 1 (Sheet 2 of 2)

ENGINE EXHAUST NOZZLE ASSEMBLY - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the engine exhaust nozzle assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

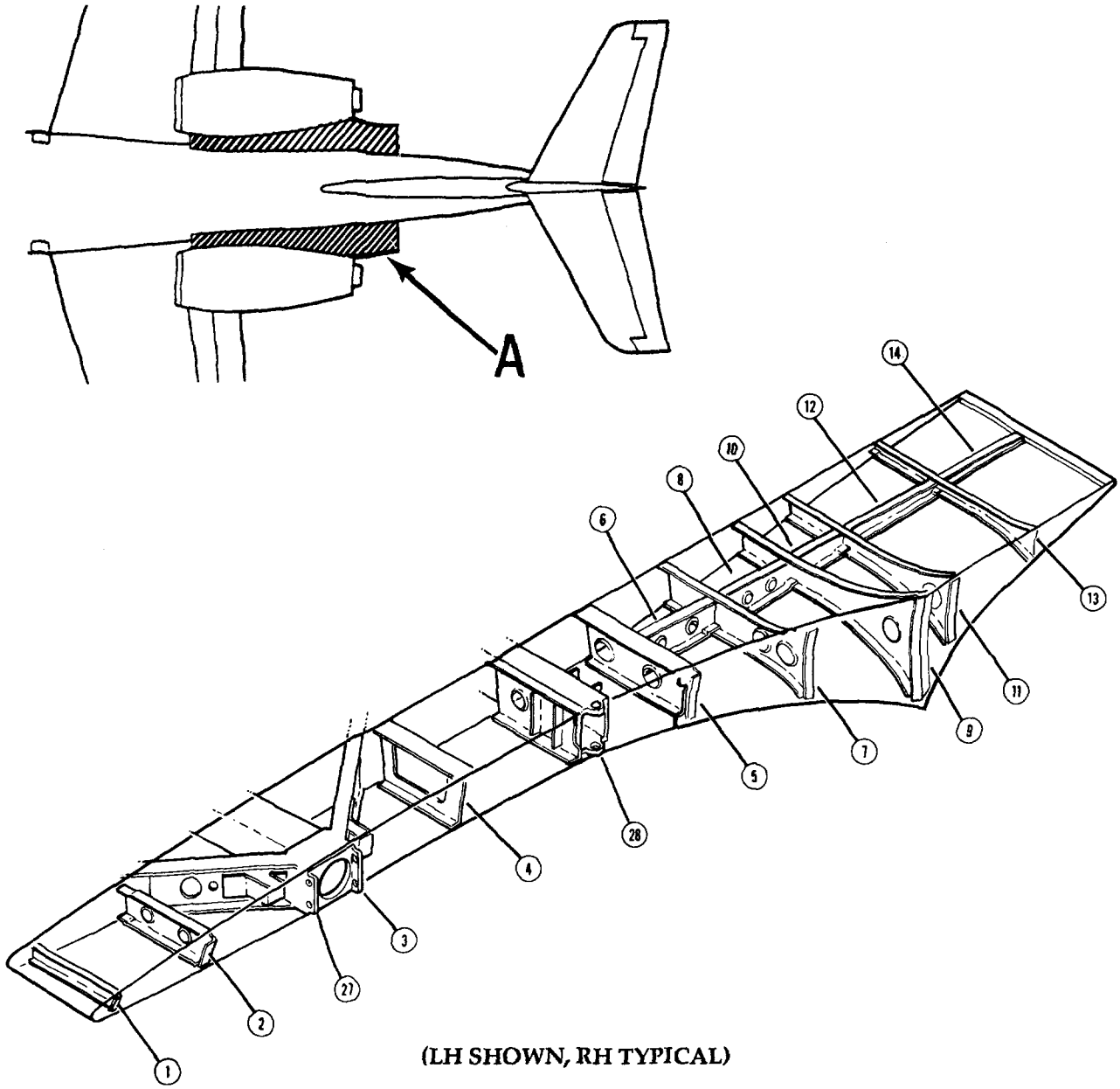
H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

ENGINE EXHAUST NOZZLE ASSEMBLY - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the exhaust nozzle assembly.

PYLON - STRUCTURAL IDENTIFICATION



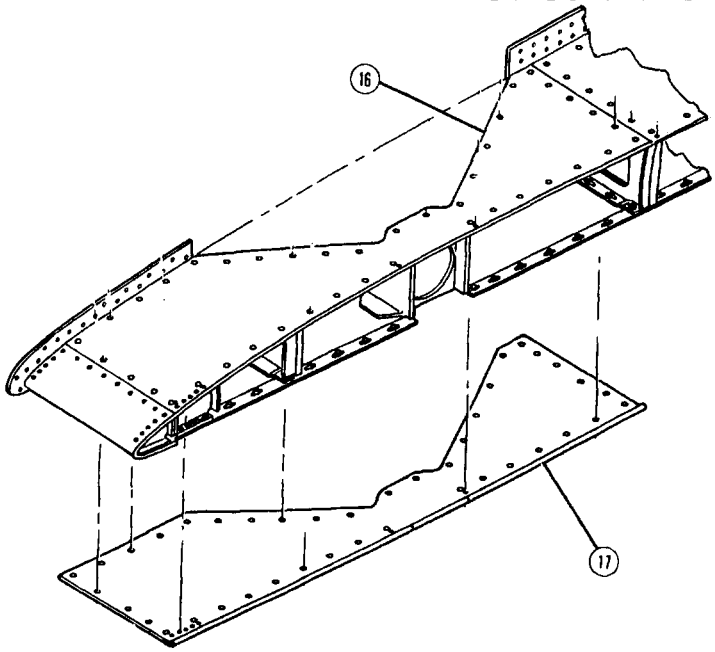
(LH SHOWN, RH TYPICAL)

Detail A

(31-002 and Subsequent; 35-002 and Subsequent; 36-002 and Subsequent)

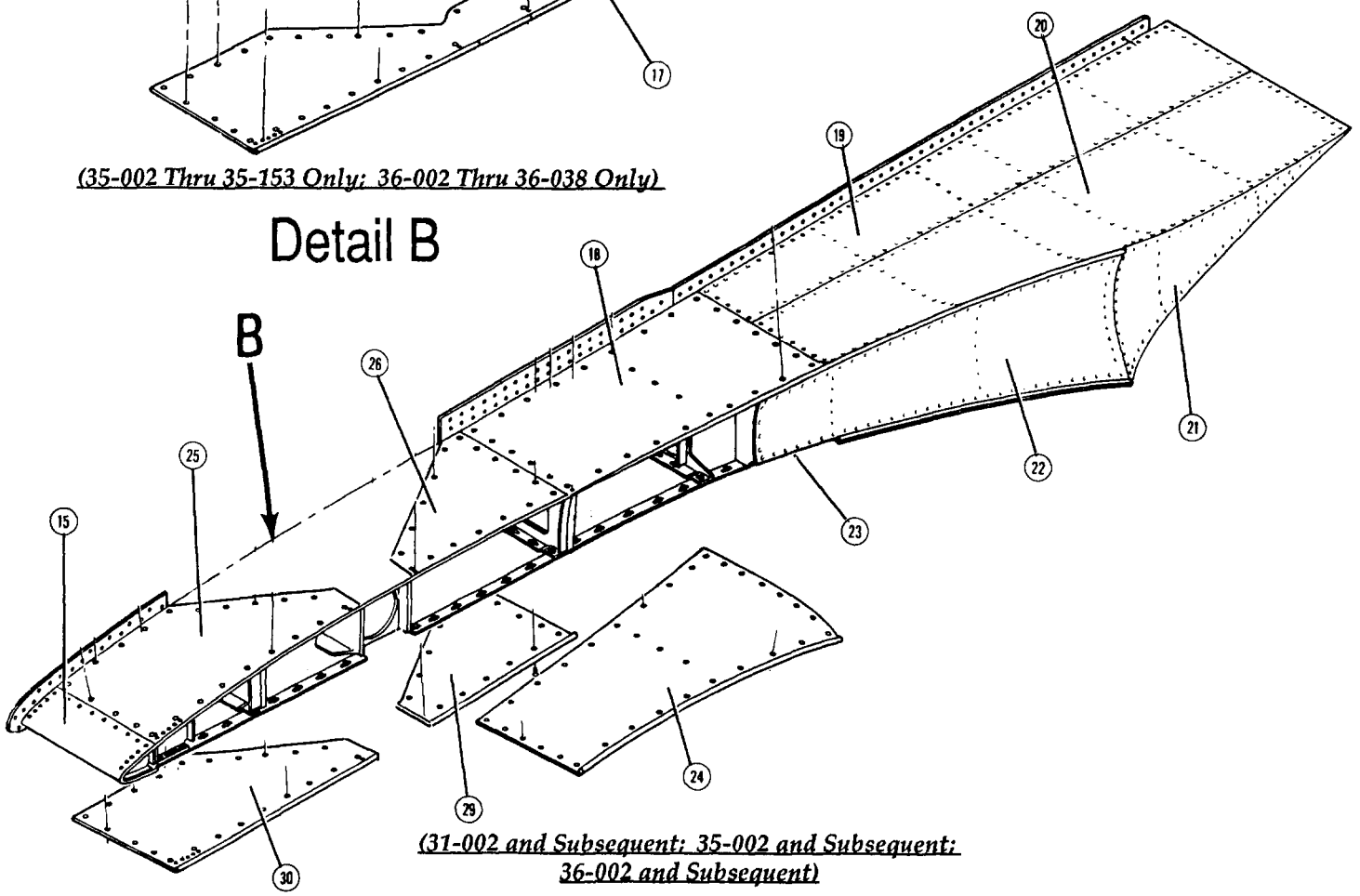
Pylon Repair Index
Figure 1 (Sheet 1 of 5)

PYLON - STRUCTURAL IDENTIFICATION



(35-002 Thru 35-153 Only; 36-002 Thru 36-038 Only)

Detail B



(31-002 and Subsequent; 35-002 and Subsequent; 36-002 and Subsequent)

Detail A

Pylon Repair Index
Figure 1 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652090	Pylon Instl., LH & RH	1	–	–	–	–
1	2652072	• Nose Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2652072	• Former	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Doubler, Upper	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Doubler, Lower	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Rib	1	2024-T42 Clad	0.032	–	Replace
	2652090	• Support Angle	1	6061-T6	0.040	–	Replace
	2612412	• Intercostal	1	2024-T42 Clad	0.050	–	Replace
	2652070	• Drag Angle, Upper	1	2024-T42 Clad	0.040	–	Replace
	2652070	• Drag Angle, Lower	1	2024-T42 Clad	0.040	–	Replace
2	2652072	• Former	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Support Angle	1	2024-T42 Clad	0.040	–	Replace
	2652070	• Support, Lower	1	2024-T42 Clad	0.080	–	Replace
	2652070	• Support, Lower	1	2024-T42 Clad	0.080	–	Replace
	2652070	• Support, Upper	1	2024-T42 Clad	0.080	–	Replace
	2652070	• Support, Upper	1	2024-T42 Clad	0.080	–	Replace
	2652072	• Bracket (2 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Clip Angle	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Clip Angle	1	2024-T42 Clad	0.040	–	Replace
3	2652072	• Splice	1	301Stainless [2]	0.020	–	Replace
	2652090	• Support Assy, Lower	1	–	–	–	–
	2652090	• Support, Lower	1	2024-T42 Clad	0.063	–	Replace
	2652072	• Clip Angle	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Spacer, Upper	1	2024-T42 Clad	0.063	–	Replace
	2652072	• Clip Angle	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Bracket Assy	1	–	–	–	–
	2652072	• • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Spacer, Lower	1	2024-T42 Clad	0.063	–	Replace
	2652090	• Support Assy, Upper	1	–	–	–	–
	2652090	• Support, Upper	1	2024-T42 Clad	0.063	–	Replace
4	2652072	• Former Assy	1	–	–	–	–
	2652072	• • Former	1	2024-T42 Clad	0.040	–	Replace
	2652072	• • Angle	1	2024-T42 Clad	0.032	–	Replace
	2652072	• • Angle	1	2024-T42 Clad	0.032	–	Replace
	2652072	• Doubler	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Drag Angle, Upper	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Spacer, Upper	1	2024-T42 Clad	0.063	–	Replace
	2652072	• Doubler	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Support Assy	6	–	–	–	–
	2652090	• • Spacer, Upper	6	2024-T42 Clad	0.063	–	Replace

Pylon Repair Index
Figure 1 (Sheet 3 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2652090	• • Support, Upper	6	2024-T42 Clad	0.063	–	Replace
	2652090	• Support Assy	6	–	–	–	–
	2652090	• • Spacer, Lower	6	2024-T42 Clad	0.063	–	Replace
	2652090	• • Support, Lower	6	2024-T42 Clad	0.063	–	Replace
	2652090	• Splice Assy	2	–	–	–	Replace
	2652090	• • Splice	2	2024-T3 Clad	0.080	–	Replace
	2652090	• Drag Angle, Lower	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Support Assy, Lower	1	–	–	–	–
	2652090	• • Support, Lower	1	2024-T42 Clad	0.063	–	Replace
	2652090	• Support Assy, Upper	1	–	–	–	–
	2652090	• • Support, Upper	1	2024-T42 Clad	0.063	–	Replace
5	2652090	• Splice Assy	1	–	–	–	–
	2652090	• Splice Plate	1	2024-T42 Clad	0.080	–	Replace
	2652072	• Former Assy	1	–	–	–	–
	2652072	• Former	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Angle	1	2024-T42 Clad	0.040	–	Replace
	2652090	• Drag Angle	1	2024-T42 Clad	0.050	–	Replace
	2652090	• Drag Angle, Lower	1	2024-T42 Clad	0.050	–	Replace
	2652072	• Doubler, Upper	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Doubler, Lower	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Angle, Upper	7	321 Stainless [1]	0.032	–	Replace
	2652072	• Angle, Lower	7	321 Stainless [1]	0.032	–	Replace
	2652072	• Angle, Upper (2 ea.)	8	321 Stainless [1]	0.032	–	Replace
	2652072	• Angle, Lower (2 ea.)	8	321 Stainless [1]	0.032	–	Replace
6	2652072	• Rib	1	2024-T42 Clad	0.032	–	Replace
	2652090	• Doubler	1	2024-T3 Clad	0.040	–	Replace
7	2652072	• Former Assy	1	–	–	–	–
	2652072	• Former	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Angle	1	2024-T42 Clad	0.040	–	Replace
8	2652072	• Rib	1	2024-T42 Clad	0.032	–	Replace
9	2652072	• Former Assy	1	–	–	–	–
	2652072	• Former	1	2024-T42 Clad	0.040	–	51-70-03
	2652072	• Angle	1	2024-T42 Clad	0.040	–	Replace
10	2652072	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
11	2652072	• Former Assy	1	–	–	–	–
	2652072	• Former	1	2024-T42 Clad	0.040	–	51-70-03
	2652072	• Angle	1	2024-T42 Clad	0.040	–	Replace
12	2652072	• Rib	1	2024-T42 Clad	0.032	–	Replace

Pylon Repair Index
Figure 1 (Sheet 4 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
13	2652072	• Former	1	2024-T42 Clad	0.040	–	Replace
	2652072	• Angle, Lower	1	321 SS Annealed	0.032	–	Replace
	2652072	• Angle, Upper	1	321 SS Annealed	0.032	–	Replace
	2652072	• Support Angle	1	2024-T42 Clad	0.032	–	Replace
	2652072	• Rib	1	2024-T42 Clad	0.040	–	Replace
14	2652072	• Filler	1	2024-T3 Clad	0.500	–	Replace
	2652072	• Spacer	1	2024-T3 Clad	0.125	–	Replace
	2652072	• Spacer	1	2024-T3 Clad	1.000	–	Replace
15	2652070	• Skin	3	2024-T42 Clad	0.032	–	51-70-02
	2652090	• Skin	4	2024-T42 Clad	0.040	–	51-70-02
16	2652090	• Skin, Upper	2	2024-T42 Clad	0.032	–	51-70-02
17	2652090	• Skin, Lower	2	2024-T42 Clad	0.032	–	51-70-02
18	2652090	• Skin, Upper	1	2024-T3 Clad	0.032	–	51-70-02
19	2652090	• Skin, Upper, Inboard	1	2024-T3 Clad	0.032	–	51-70-02
20	2652090	• Skin, Upper, Outboard	1	321Stainless [1]	0.032	–	51-70-02
21	2652090	• Closeout, Aft	1	321Stainless [1]	0.032	–	51-70-02
22	2652090	• Firewall, Forward	1	321Stainless [1]	0.032	–	51-70-02
23	2652090	• Skin, Lower, Outboard	1	321Stainless [1]	0.032	–	51-70-02
	2652090	• Skin, Lower, Inboard	1	2024-T3 Clad	0.032	–	51-70-02
24	2652090	• Skin, Lower	1	2024-T3 Clad	0.032	–	51-70-02
25	2652090	• Skin, Upper, Forward	6	2024-T42 Clad	0.032	–	51-70-02
26	2652090	• Skin, Upper, Aft	6	2024-T42 Clad	0.032	–	51-70-02
27	2612042	• Engine Support Fitting, Fwd	1	–	–	–	Replace
28	2612056	• Engine Support Fitting, Aft	1	–	–	–	Replace
	2652056	• Former	1	2024-T42 Clad	0.040	–	Replace
29	2652090	• Skin, Lower, Aft	6	2024-T42 Clad	0.032	–	51-70-02
30	2652090	• Skin, Lower, Forward	6	2024-T42 Clad	0.032	–	51-70-02

CODES **EFFECTIVITIES**

1	31-002 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	35-002 THRU 35-529; 36-002 THRU 36-053
3	35-002 THRU 35-022; 36-002 THRU 36-038
4	35-023 AND SUBSEQUENT; 36-014 AND SUBSEQUENT
5	35-028, 35-033, 35-034, 35-036 AND SUBSEQUENT; 35-014, 36-017 AND SUBSEQUENT
6	35-530 AND SUBSEQUENT; 36-054 AND SUBSEQUENT; 31-002 AND SUBSEQUENT
7	35-002 THRU 35-153; 36-002 THRU 36-038
8	35-154 AND SUBSEQUENT; 36-039 AND SUBSEQUENT

NOTES

[1] Condition Annealed

[2] 1/2 Condition Hard

Pylon Repair Index
Figure 1 (Sheet 5 of 5)

PYLON - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the pylon assembly structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

PYLON - REPAIR

1. APPROVED REPAIRS

WARNING:
- TEMPORARY (NON-FLUSH) REPAIR TO THE UPPER AND LOWER SURFACES OF THE PYLON MAY AFFECT FLIGHT CHARACTERISTICS OF THE AIRCRAFT. A FLIGHT CHECK MUST BE MADE. (REFER TO 51-10-00.)
- ALL TEMPORARY (NON-FLUSH) REPAIRS MUST BE CHANGED TO PERMANENT TYPE REPAIRS AT THE EARLIEST POSSIBLE TIME.

A. Refer to Chapter 52 for typical repairs, and for allowable wear and repair data for fittings, forgings and attaching parts located within the pylon assembly.

CHAPTER

55

STABILIZERS

Learjet

STRUCTURAL REPAIR MANUAL

Subject	Chapter Section Subject	Page
STABILIZERS - STRUCTURAL IDENTIFICATION	55-00-00	
Description	55-00-00	1
Stabilizers Master Repair Index	55-00-00	1
HORIZONTAL STABILIZER - STRUCTURAL IDENTIFICATION	55-10-00	
Description	55-10-00	1
Horizontal Stabilizer Repair Index – (*Model 23/24/25/28/29/31 Series Aircraft*)	55-10-00	2
Horizontal Stabilizer Repair Index – (*Model 35/36 Series Aircraft*)	55-10-00	9
HORIZONTAL STABILIZER - ALLOWABLE DAMAGE	55-10-00	
Allowable Damage Limits	55-10-00	101
HORIZONTAL STABILIZER - REPAIR	55-10-00	
General	55-10-00	201
Limitations and Inspections	55-10-00	201
Materials and Processes	55-10-00	201
Repair Procedures	55-10-00	202
Horizontal Stabilizer Rear Spar Cap – Repair	55-10-00	202
ELEVATOR - STRUCTURAL IDENTIFICATION	55-20-00	
Description	55-20-00	1
Elevator Repair Index – (*Model 23/24/25 Series Aircraft*)	55-20-00	1
Elevator Repair Index – (*Model 28/29/31/35/36 Series Aircraft*)	55-20-00	5
ELEVATOR - ALLOWABLE DAMAGE	55-20-00	
Allowable Damage Limits	55-20-00	101
ELEVATOR - REPAIR	55-20-00	
Approved Repairs	55-20-00	201
VERTICAL STABILIZER - STRUCTURAL IDENTIFICATION	55-30-00	
Description	55-30-00	1
Vertical Stabilizer Repair Index – (*Model 23/24/25 Series Aircraft*)	55-30-00	1
Vertical Stabilizer Repair Index – (*Model 28/29/31 Series Aircraft*)	55-30-00	8
Vertical Stabilizer Repair Index – (*Model 35/36 Series Aircraft*)	55-30-00	14
VERTICAL STABILIZER - ALLOWABLE DAMAGE	55-30-00	
Allowable Damage Limits	55-30-00	101
VERTICAL STABILIZER - REPAIR	55-30-00	
Approved Repairs	55-30-00	201
FIN TIP - STRUCTURAL IDENTIFICATION	55-35-00	
Fin Tip Repair Index – (*Model 23/24/25/35/36 Series Aircraft*)	55-35-00	1
Fin Tip Repair Index – (*Model 28/29/31 Series Aircraft*)	55-35-00	6
FIN TIP - ALLOWABLE DAMAGE	55-35-00	
Allowable Damage Limits	55-35-00	101
FIN TIP - REPAIR	55-35-00	
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Subject	Chapter Section Subject	Page
RUDDER & TRIM TAB - STRUCTURAL IDENTIFICATION	55-40-00	
Description	55-40-00	1
Rudder & Trim Tab Repair Index - (*Model 23 Aircraft and Early Model 24/25 Series Aircraft*)	55-40-00	1
Rudder & Trim Tab Repair Index - (*Late Model 24/25 Series Aircraft and Model 28/29/31/35/36 Series Aircraft*)	55-40-00	4
RUDDER & TRIM TAB - ALLOWABLE DAMAGE	55-40-00	
Allowable Damage Limits	55-40-00	101
RUDDER & TRIM TAB - REPAIR	55-40-00	
Approved Repairs	55-40-00	201

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STRUCTURAL REPAIR MANUAL

Chapter Section Subject	Page	Date
55-TITLE		
* 55-List of Eff. Pgs.	1	Jun 1/95
55-Contents	1	Jan 15/93
55-Contents	2	Jan 15/93
55-00-00	1	May 15/92
55-10-00	1	May 15/92
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* 55-10-00	4	Jun 1/95
* 55-10-00	5	Jun 1/95
* 55-10-00	6	Jun 1/95
* 55-10-00	7	Jun 1/95
* 55-10-00	8	Jun 1/95
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* 55-10-00	11	Jun 1/95
* 55-10-00	12	Jun 1/95
* 55-10-00	13	Jun 1/95
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55-20-00	1	May 15/92
55-20-00	2	May 15/92
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55-20-00	6	May 15/92
55-20-00	7	May 15/92
55-20-00	101	May 15/92
55-20-00	102	May 15/92
55-20-00	201	May 15/92
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55-30-00	19	May 15/92
55-30-00	101	May 15/92
55-30-00	102	May 15/92
55-30-00	201	May 15/92
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55-40-00	4	May 15/92
55-40-00	5	May 15/92
55-40-00	6	May 15/92
55-40-00	101	May 15/92
55-40-00	102	May 15/92
55-40-00	201	May 15/92

Insert Latest Revised Pages; Destroy Superseded or Deleted Pages.
* Asterisk indicates pages revised, deleted, or added by current revision.
The portion of the text affected by the current revision is indicated by a vertical line in the outer margin of the page.

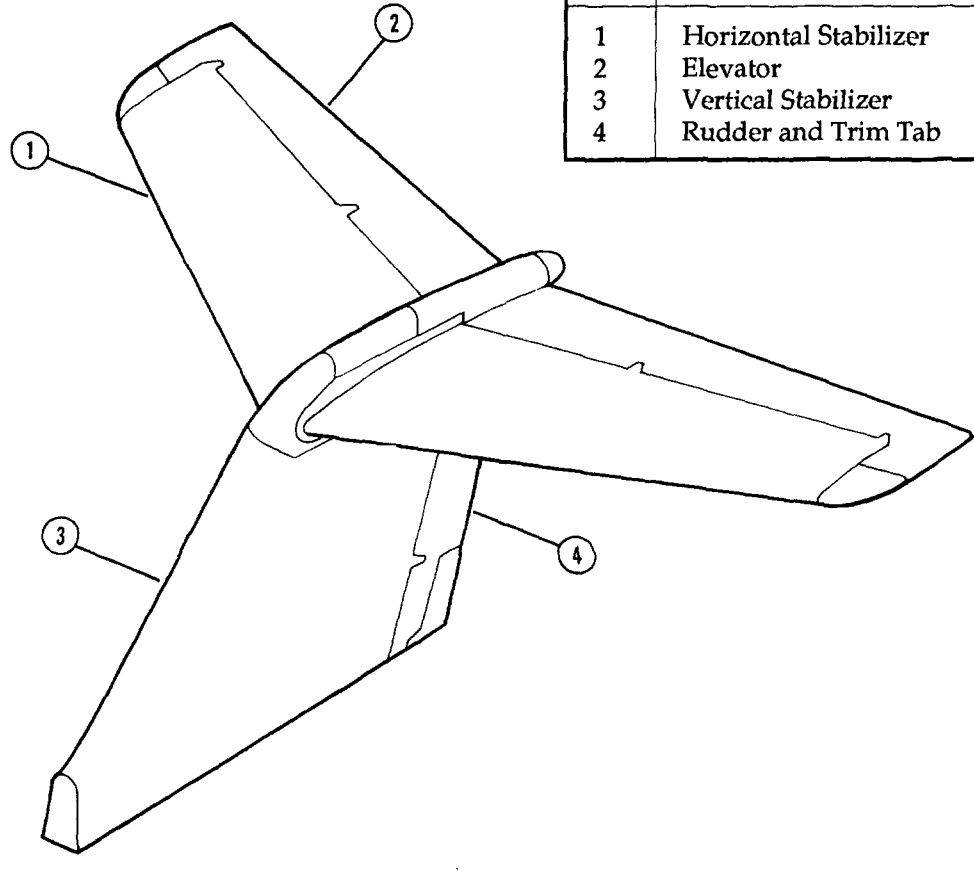
STABILIZERS - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. This chapter covers structural components, allowable damage limits, skin gap tolerances and repair of aircraft stabilizers.
B. Stabilizers include the horizontal stabilizer, elevators, vertical stabilizer and rudder.
C. Repair indexes are incorporated in each respective section for the specific components.
D. Allowable damage limits for each component are given in each respective section.

Item	Description	Chapter Section Subject
1	Horizontal Stabilizer	55-10-00
2	Elevator	55-20-00
3	Vertical Stabilizer	55-30-00
4	Rudder and Trim Tab	55-40-00



14-193A

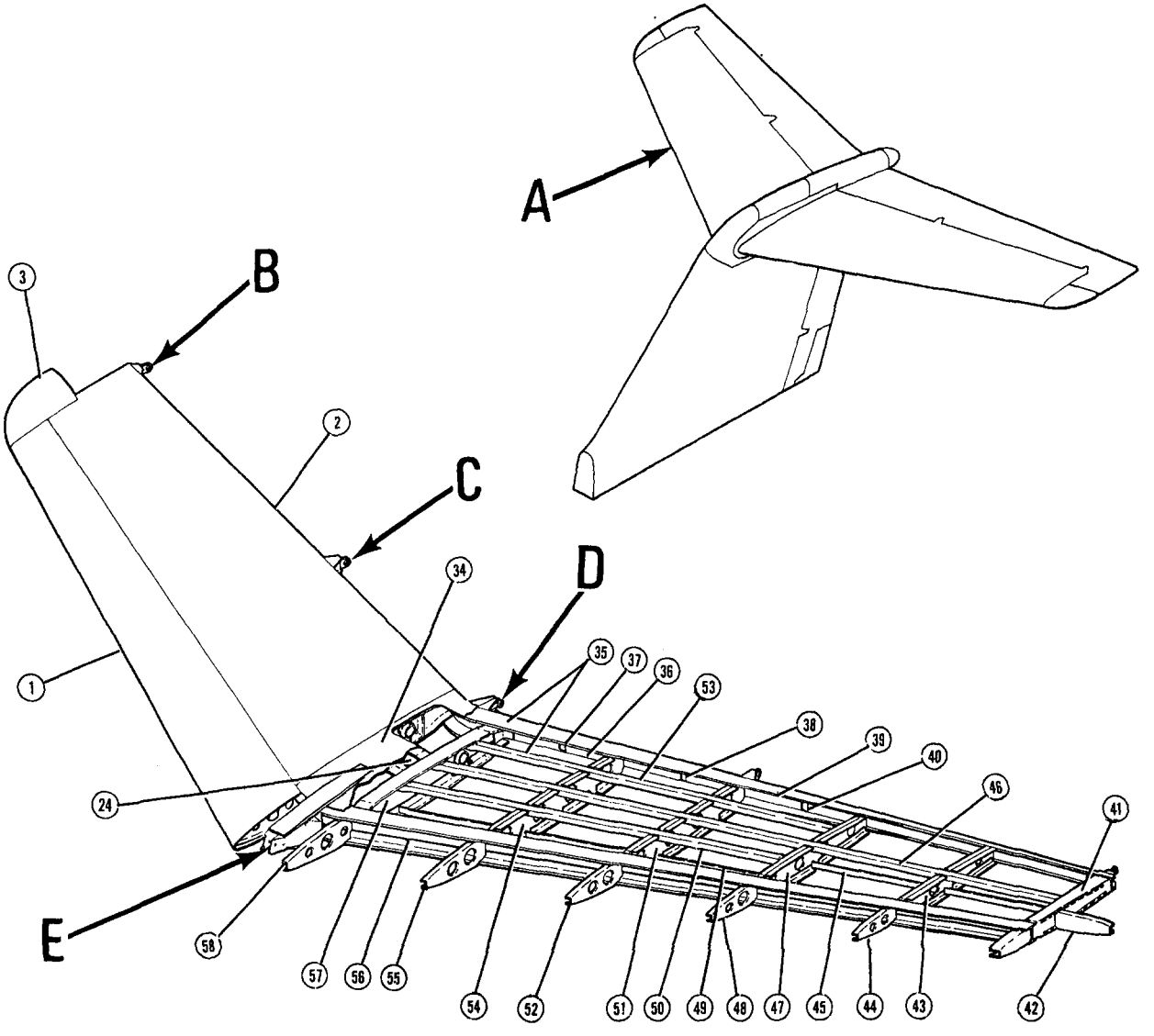
Stabilizers Master Repair Index
Figure 1

HORIZONTAL STABILIZER - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

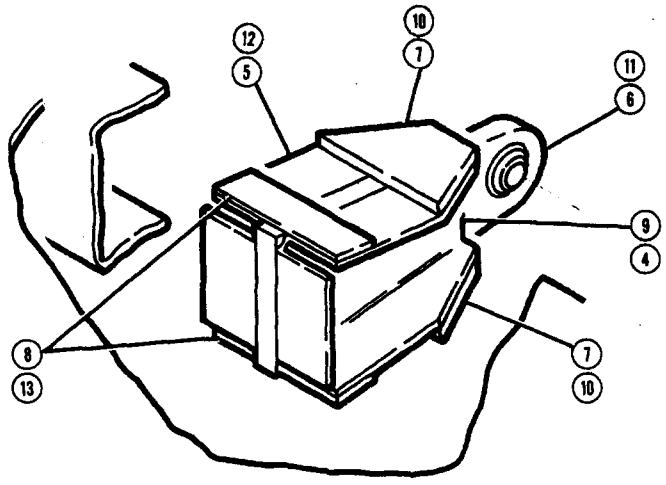
NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. The one-piece horizontal stabilizer is attached to the vertical stabilizer at two points.
   (1) The aft point serves as a pivot and consists of a large pin inserted through bearings in the horizontal and vertical stabilizers.
   (2) The forward attach point attaches to the jack screw end of the horizontal stabilizer actuator.
   (3) The base of the actuator is secured to the vertical stabilizer forward spar.
B. The horizontal stabilizer is constructed of spars and ribs covered with skin.
C. Access covers on the bottom skin of the horizontal stabilizer provide access to the hinge points.

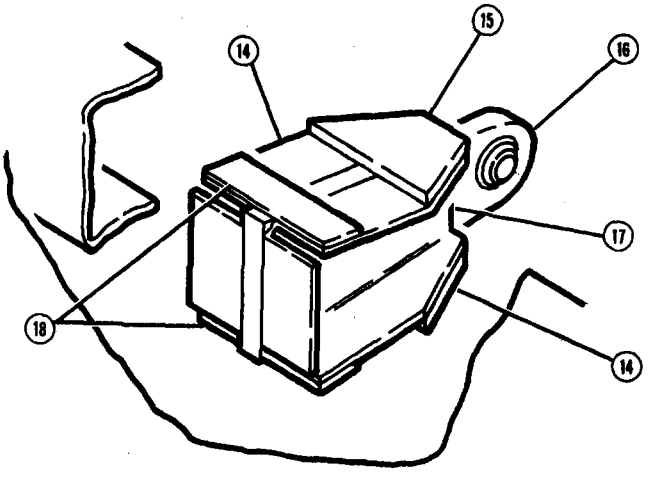


Detail A

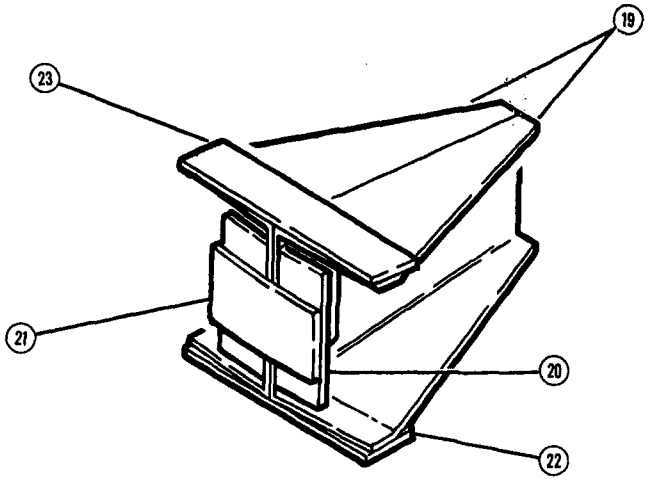
Horizontal Stabilizer Repair Index
Figure 1 (Sheet 1 of 7)



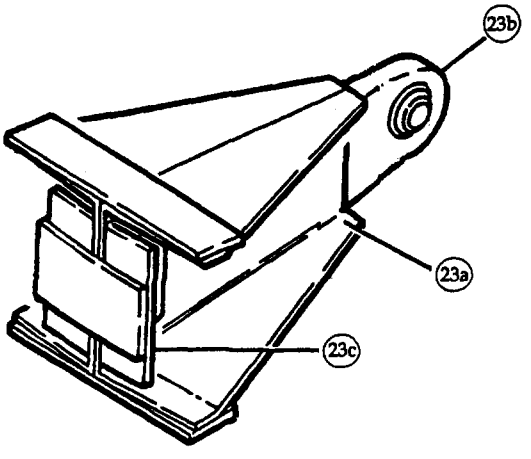
Detail B



Detail C

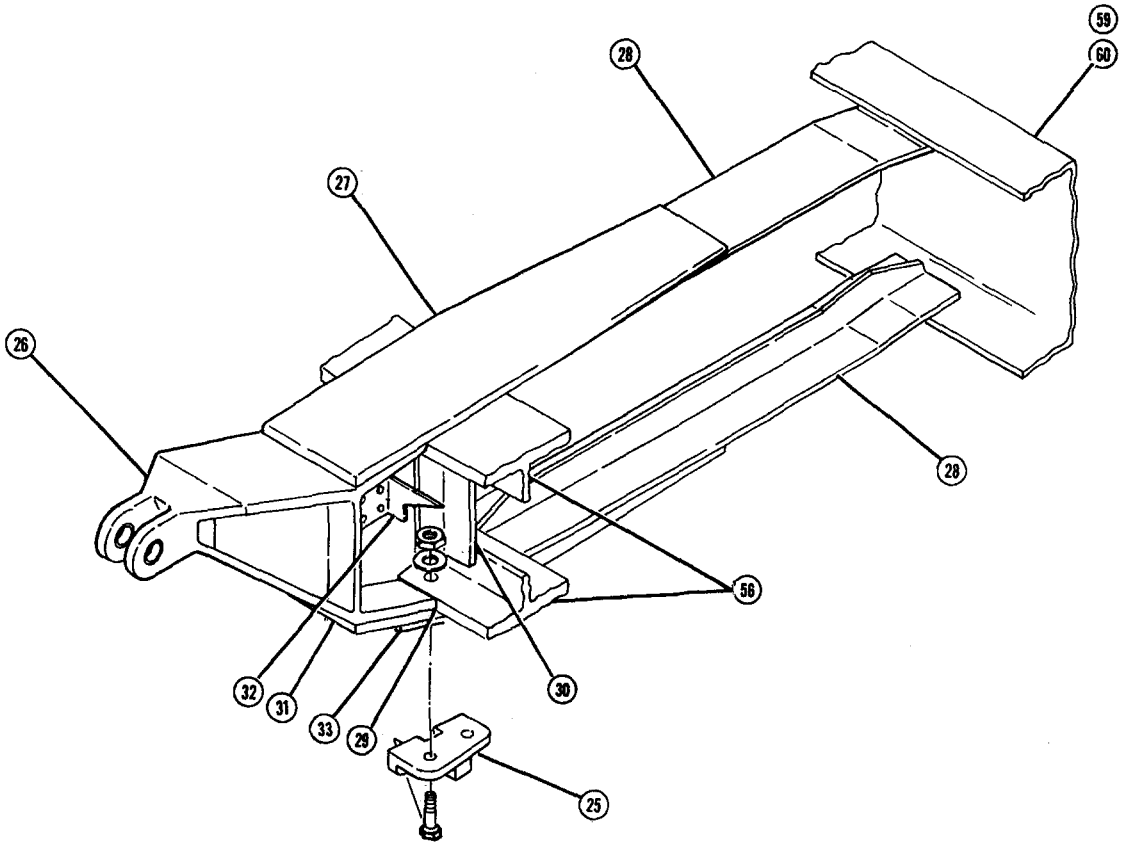


(All 20 Series Aircraft and 31-001 Thru 31-077)



(31-078 and Subsequent)

Detail D



Detail E

E5-20B-1

Horizontal Stabilizer Repair Index
Figure 1 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2332000	Horizontal Stabilizer Assembly	1	–	–	–	–
1	2332000	• Skin, Leading Edge LH and RH	1	2024-T42 Clad	0.040	–	51-70-02
2	2332000	• Skin, LH & RH Upper	1	2024-T42 Clad	0.050	–	51-70-02
	2332000	• Skin, LH & RH Lower	1	2024-T42 Clad	0.050	–	51-70-02
3	2332014	• Tip Cover, LH and RH	1	6061-T42	0.040	F14-1int F1ext	51-70-02
	2332013	• Hinge Assy., Outbd LH & RH	2	–	–	–	–
4	2332013	• • Bracket, Outbd	2	2024-T42 Clad	0.080	F4-1	Replace
5	2332013	• • Bracket, Inbd	2	2024-T42 Clad	0.080	F4-1	Replace
6	2332013	• • Hinge Arm	2	2024-T42 Clad	0.250	F4-6	51-71-08
7	2332013	• • Filler, Upper & Lower	2	2024-T3 Clad	0.125	F4-1	Replace
8	2332013	• • Shim, Laminated (Max. 0.030)	2	1	0.003	–	Replace
	2332018	• Hinge Assy., Outbd LH & RH	3	–	–	–	–
9	2332018	• • Bracket, Outbd	3	2024-T42 Clad	0.071	–	Replace
10	2332018	• • Filler, Upper & Lower	3	2024-T3 Clad	0.160	–	Replace
11	2332018	• • Hinge Arm	3	2024-T4 Clad	0.250	–	51-71-08
12	2332018	• • Bracket, Inbd	3	2024-T42 Clad	0.071	–	Replace
13	2332018	• • Shim, Laminated (Max. 0.030)	3	1	0.003	–	Replace
	2332018	• Hinge Assy., Inbd LH & RH	1	–	–	–	–
14	2332018	• • Bracket, Outbd	1	2024-T42 Clad	0.071	–	Replace
15	2332018	• • Filler, Upper & Lower	1	2024-T3 Clad	0.160	–	Replace
16	2332018	• • Hinge Arm	1	2024-T4 Clad	0.250	–	51-71-08
17	2332018	• • Bracket, Inbd	1	2024-T42 Clad	0.071	–	Replace
18	2332018	• • Shim, Laminated (Max. 0.030)	1	1	0.003	–	Replace
	2332019	• Hinge Instl., Center	14	–	–	–	–
19	2332019	• • Channel	14	2024-T42 Clad	0.071	–	51-71-08
20	2332019	• • Clip	14	S-502	–	–	Replace
21	2332019	• • Filler	14	2024-T42	0.080	–	Replace
22	2332019	• • Shim, Laminated (Max. 0.030)	2	1	0.003	–	Replace
23	2332019	• • Shim, Laminated (Max. 0.063)	14	1	0.003	–	Replace
	3532000	• Hinge Instl., LH & RH Center Elevator	15	–	–	–	–
	3532003	• • Hinge Assy. (2 ea.)	15	–	–	–	Replace
23a	3532001	• • • Hinge Arm Assy.	15	–	–	–	Replace
23b	3532001	• • • • Hinge Arm	15	2024-T3 Clad	0.250	–	Replace
	MS27641-4	• • • • Bearing	15	–	–	–	Replace
23c	3532002	• • • • Bracket, Elevator Center Hinge	15	301 Stainless 3	–	–	Replace
	MS21069L08	• • • • Nutplate	15	–	–	–	Replace
	3532001	• • Filler (2 ea.)	15	2024T3 Clad	0.016	F4-6	Replace
	3532001	• • Spacer	15	2024T3 Clad	0.080	F4-6	Replace
	3532001	• • Shim	15	4	–	–	Replace

Horizontal Stabilizer Repair Index
Figure 1 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2332050	• Bracket Instl.	1	–	–	–	–
24	2332050	• • Cap, Upper	9	2024-T42 Clad	0.250	–	Replace
	2332050	• • Cap, Lower	9	2024-T42 Clad	0.250	–	Replace
	2332050	• • Doubler	9	2024-T42 Clad	0.080	–	Replace
	2332050	• • Angle	9	2024-T3 Clad	0.040	–	Replace
	2332050	• • Doubler, (LH Only)	9	4130 Steel [2]	0.080	–	Replace
	2332050	• • Doubler	9	4130 Steel [2]	0.071	–	Replace
	2332050	• • Stiffener	9	S-551	–	–	Replace
	2332050	• • Stop Plate	9	2024-T4 Clad	0.250	–	Replace
	2332050	• • Filler, Laminated (Max. 0.070)	9	[1]	0.003	–	Replace
	2332050	• • Doubler, LH Only	9	4130 Steel [2]	0.080	–	Replace
	2332050	• • Angle	11	S580		–	Replace
	2332050	• • Rib, LH and RH	9	2024-T42 Clad	0.090	–	51-71-00
25	2631512	• • Retainer Assy.	12	–	–	–	Replace
	2631517	• • • Bracket, LH & RH	12	4130 Steel [2]	1.300	F8-1	Replace
	2631515	• • • Stud, Dual	12	4130 Steel [2]	0.500	–	Replace
26	2832052	• • Fitting	10	–	–	–	51-71-08
27	2332050	• • Upper Cap	10	2024-T42	0.250	–	Replace
28	2332050	• • Stiffener	10	S-551	–	–	Replace
29	2332050	• • Filler, Laminated (Max. 0.063)	10	[1]	0.003	–	–
30	2332050	• • Doubler	10	2024-T42 Clad	0.080	–	Replace
	2332050	• • Angle	4	2024-T3 Clad	0.063	–	Replace
31	2332050	• • Lower Cap	10	2024-T42 Clad	0.250	–	Replace
32	2332050	• • Pointer	5	2024-T3 Clad	0.050	–	Replace
33	2332050	• • Stop Plate	6	2024-T4 Clad	0.250	–	Replace
34	2332050	• Skin, Upper & Lower	1	2024-T42 Clad	0.063	–	Replace
	2332010	• Spar Assy., Rear	1	–	–	–	Replace
35	2332010	• • Spar Cap, Upper & Lower	1	S-740 (Alt S-584)	–	–	Replace
36	2332010	• • Web, LH & RH	1	2024-T3 Clad	0.050	–	51-70-02
37	2332010	• • Angle, LH & RH	1	S-571	–	–	51-70-04
38	2332010	• • Angle, LH & RH	1	S-571	–	–	51-70-04
39	2332010	• • Web, LH & RH	1	2024-T3 Clad	0.040	–	51-70-02
40	2332010	• • Angle, LH & RH	1	S-571	–	–	51-70-04
41	2332012	• Rib Assy., LH & RH	1	–	–	–	–
	2332012	• • Rib (2 ea.)	1	2024-T42 Clad	0.032	–	51-70-03
	2332012	• • Clip	1	2024-T42 Clad	0.040	–	Replace
	2332012	• • Clip	1	2024-T3 Clad	0.040	–	Replace
42	2332012	• Rib Tip, LH & RH	1	2024-T42 Clad	0.032	–	Replace
43	2332011	• Rib Assy., LH & RH	1	–	–	–	–
	2332011	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	Replace
	2332011	• • Clip (4 ea.)	1	2024-T42 Clad	0.032	–	Replace

Horizontal Stabilizer Repair Index
Figure 1 (Sheet 5 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
44	2332011	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
45	2332000	• Stringer, LH & RH Lower	1	S-554	–	–	51-70-04
46	2332000	• Stringer, LH & RH Upper	1	S-554	–	–	51-70-04
47	2332011	• Rib Assy., LH & RH	1	–	–	–	–
	2332011	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	Replace
	2332011	• • Clip (4 ea.)	1	2024-T42 Clad	0.032	–	Repalce
48	2332011	• Rib, LH & RH	1	2024-T42 Clad	0.032	–	51-70-03
49	2332000	• Stringer, Lower LH & RH	1	S-554	–	–	51-70-04
50	2332000	• Stringer, Upper LH & RH	1	S-554	–	–	51-70-04
51	2332011	• Rib Assy., LH & RH	1	–	–	–	–
	2332011	• • Clip (6 ea.)	1	2024-T3 Clad	0.050	–	–
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	–
	2332011	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03
52	2332011	• Rib, LH & RH	1	2024-T42 Clad	0.032	–	51-70-03
53	2332000	• Stringer, Upper LH & RH	1	S-554	–	–	51-70-04
	2332000	• Stringer, Lower LH & RH	1	S-554	–	–	51-70-04
54	2332011	• Rib Assy., LH & RH	1	–	–	–	–
	2332011	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	–
	2332011	• • Clip (4 ea.)	1	2024-T3 Clad	0.050	–	–
55	2332011	• Rib, LH & RH	1	2024-T42 Clad	0.032	–	51-70-03
56	2332010	• Spar Assy., Front	1	–	–	–	–
	2332010	• • Spar Cap, Upper & Lower	1	S-739 (Alt S-584)	–	–	51-70-04
	2332010	• • Web, Outboard LH & RH	1	2024-T3 Clad	0.040	–	51-70-02
	2332010	• • Web, Inboard LH & RH	1	2024-T3 Clad	0.050	–	51-70-02
	2332010	• • Angle, LH & RH (3 ea.)	1	S-571	–	–	51-70-04
	2332010	• • Filler, LH & RH	1	2024-T3 Clad	0.080	–	–
	2632010	• • Filler, LH & RH (4 ea.)	1	6061-T6 Clad	0.080	–	–
57	2332012	• Rib Assy., LH & RH	1	–	–	–	–
	2332012	• • Cap, Bottom LH & Top RH	1	S-586	–	–	51-70-04
	2332012	• • Cap, Top LH & Bottom RH	1	S-586	–	–	51-70-04
	2332012	• • Filler, Top & Bottom	1	2024-T3 Clad	0.400	–	–
	2332012	• • Filler, Top & Bottom	1	2024-T3 Clad	0.400	–	–
	2332012	• • Shim, Laminated (Max. 0.032)	1	1	0.003	–	–
	2332012	• • Angle, Inboard Aft End	1	2024-T42 Clad	0.100	–	–
	2332012	• • Angle, Inboard Aft End	1	2024-T42 Clad	0.100	–	–
	2332012	• • Angle, Inboard Fwd End	1	2024-T42 Clad	0.100	–	–
	2332012	• • Web	1	2024-T3 Clad	0.100	–	51-70-02
	2332012	• • Doubler	13	2024-T3 Clad	0.025	F4-1	–
	2332015	• • Hinge Assy.	1	–	–	–	Replace

Horizontal Stabilizer Repair Index
Figure 1 (Sheet 6 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
58	2332010	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2832051	• Gusset Instl.	7	–	–	–	–
59	2832051	• • Gusset	7	2024-T42 Clad	0.100	–	51-70-03
	2832051	• • Doubler	7	2024-T3 Clad	0.100	–	–
	2832051	• • Angle	7	S-568	–	–	–
	2832016	• Gusset Instl.	8	–	–	–	–
60	2832016	• • Gusset	8	2024-T42 Clad	0.100	–	51-70-03
	2832016	• • Angle	8	S-568	–	–	–

CODES	EFFECTIVITIES
1	23-003 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
2	23-003 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-272; 28-001 THRU 28-005; 29-001 THRU 29-002
3	25-373; 29-003 THRU 29-004; 31-001 AND SUBSEQUENT
4	23-018 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
5	23-050 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
6	24-156 THRU 24-357; 25-007 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
7	25-242 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
8	24-156 THRU 24-357; 25-002 THRU 25-241
9	23-003 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
10	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
11	23-002 THRU 23-017
12	25-301 AND SUBSEQUENT; 29-003 THRU 29-004
13	31-015 AND SUBSEQUENT
14	23-003 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 THRU 31-077
15	31-078 AND SUBSEQUENT

NOTES

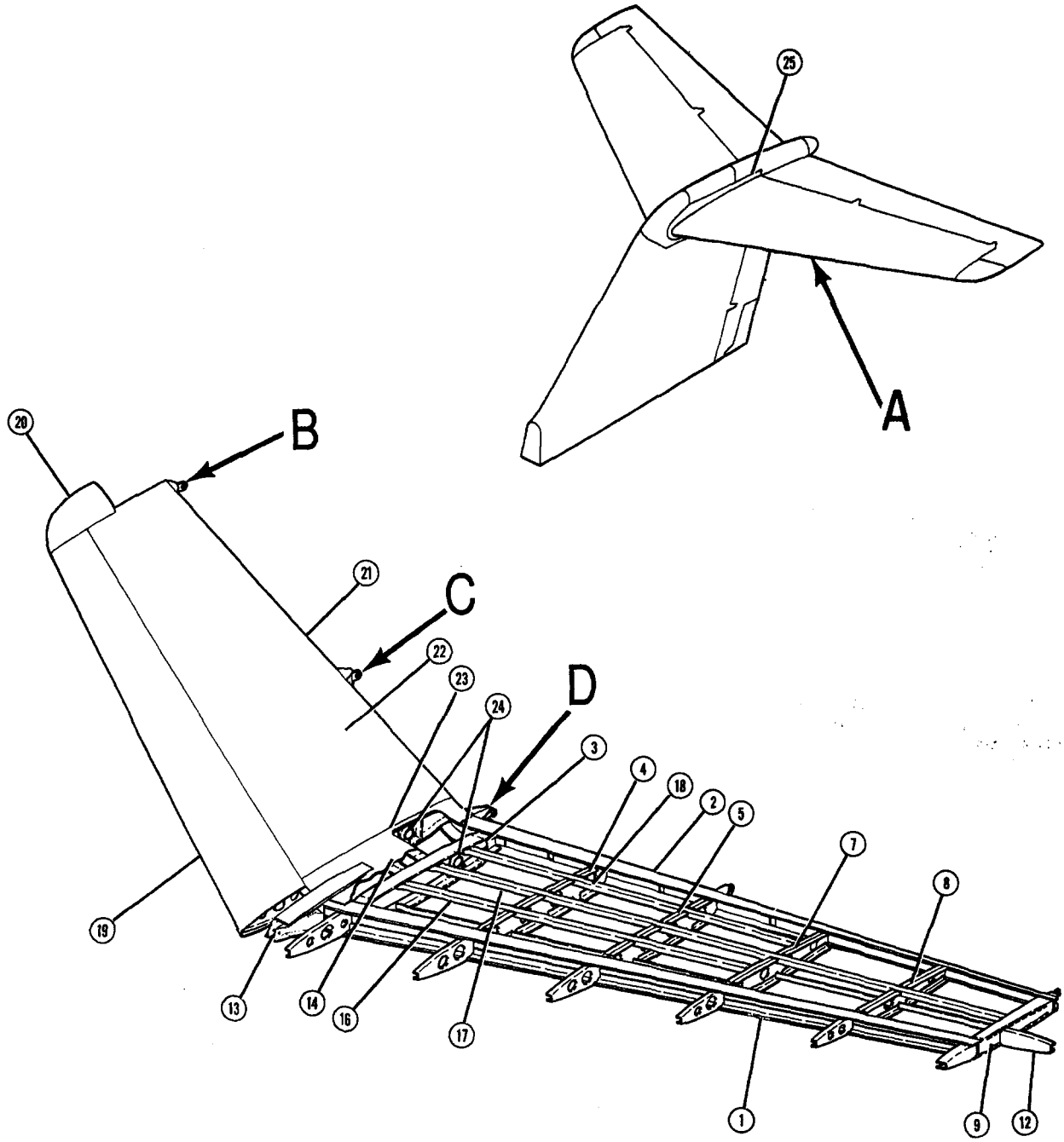
1. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

2. Condition Normalized.

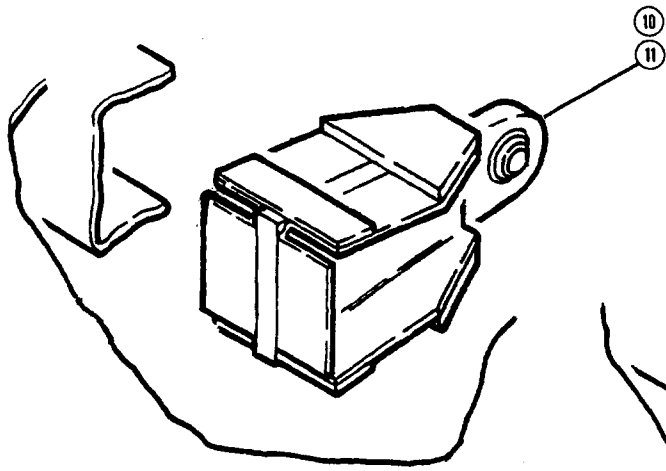
3. 301 Stainless Steel, 1/4 hard.

4. Made from M22499/1-017 shim stock.

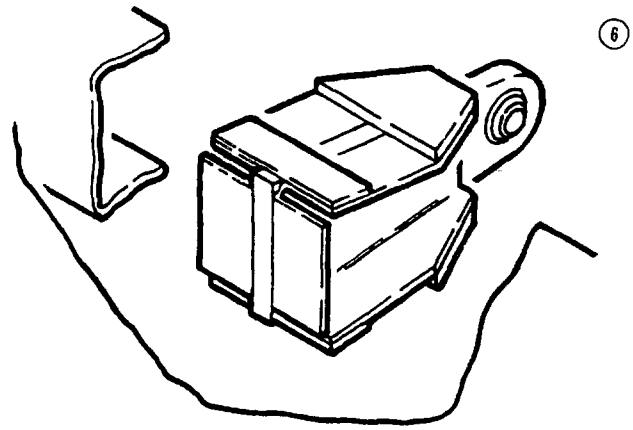
Horizontal Stabilizer Repair Index
Figure 1 (Sheet 7 of 7)



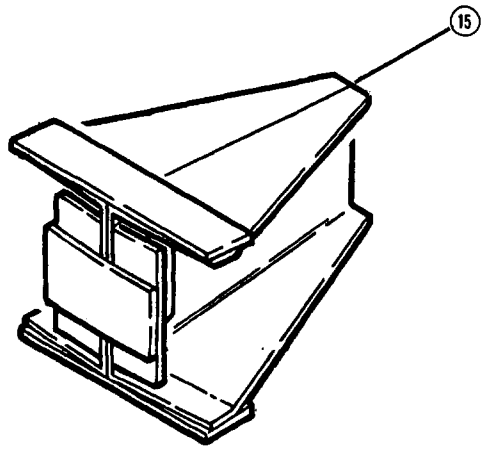
Detail A



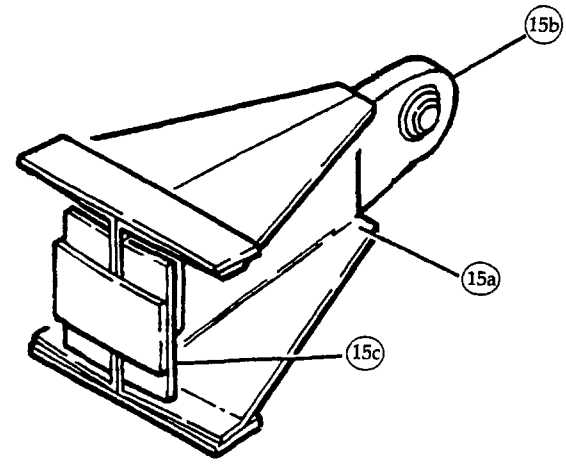
Detail B



Detail C



(35-001 Thru 35-676; 36-001 Thru 36-063)



(35-677 and Subsequent; 36-064 and Subsequent)

Detail D

Horizontal Stabilizer Repair Index
Figure 1 (Sheet 2 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2632000	*Horizontal Stabilizer Assembly*	1	–	–	–	–
	2632020	• Spar Instl., Front	1	–	–	–	–
1	2632020	• • Spar Assy.	1	–	–	F4-1	–
	2632020	• • • Spar Cap, Upper & Lower	1	S-739	–	F4-1	Replace
	2632020	• • • Web	1	2024-T3 Clad	0.050	F4-1	51-70-02
	2632020	• • • Web	1	2024-T3 Clad	0.040	F4-1	51-70-02
	2632020	• • • Angle (3 ea.)	1	S-571	–	F4-1	Replace
	2632020	• Spar Instl., Rear	1	–	–	–	–
2	2632020	• • Spar Assy.	1	–	–	F4-1	–
	2632020	• • • Spar Cap	1	S-740	–	F4-1	Replace
	2632020	• • • Web	1	2024-T3 Clad	0.050	F4-1	51-70-02
	2632020	• • • Web	1	2024-T3 Clad	0.040	F4-1	51-70-02
	2632020	• • • Angle (3 ea.)	1	S-571	–	F4-1	Replace
	2332012	• Rib Instl., BL 4.5, LH and RH	1	–	–	–	–
3	2332012	• • Rib Assy., LH and RH	1	–	–	–	–
	2332012	• • • Web	1	2024-T3 Clad	0.100	–	51-70-02
	2332012	• • • Cap, Top and Bottom	1	S-586	–	–	Replace
	2332012	• • • Angle (3ea.)	1	2024-T42 Clad	0.100	–	Replace
	2332015	• • • Hinge Assy.	1	–	–	–	–
	2332015	• • • Hinge	1	Steel Forging	–	–	51-71-00
	2332012	• • *Doubler*	4	2024-T3 Clad	0.025	F4-1	–
	2332012	• • Filler (2 ea.)	1	2024-T3 Clad	0.400	–	Replace
	2332012	• • Shim, Laminated (Max. 0.032)	1	1	0.003	–	Replace
4	2332011	• Rib Assy., LH and RH	1	–	–	–	–
	2332011	• • Rib, BL 19.40	1	2024-T42 Clad	0.032	–	51-70-03
	2332011	• • *Rib Clip*	1	2024-T3 Clad	0.032	–	Replace
	2332011	• • Rib Clip (6 ea.)	1	2024-T3 Clad	0.050	–	Replace
5	2332011	• Rib Assy., LH and RH	1	–	–	–	–
	2332011	• • Rib, BL 34.80	1	2024-T42 Clad	0.032	–	Replace
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	Replace
	2332011	• • *Clip (6 ea.)*	1	2024-T3 Clad	0.050	–	Replace
	2332011	• • Angle	1	2024-T42	0.032	–	Replace
	2332018	• Hinge Instl., Inboard, LH & RH	1	–	–	–	–
6	2332018	• • Hinge Assy.	1	–	–	–	–
	2332018	• • • Bracket (2 ea,)	1	2024-T42 Clad	0.071	–	Replace
	2332018	• • • *Spacer*	1	2024-T3 Clad	0.080	–	Replace
	2332018	• • • Shim, Laminated (Max. 0.032)	1	1	0.003	–	Replace
	2332018	• • • Filler	1	2024-T3 Clad	0.160	–	Replace
	2332018	• • • Hinge Arm	1	2024-T4 Clad	0.250	–	51-71-00
7	2332011	• Rib Assy., LH and RH	1	–	–	–	–
	2332011	• • *Rib, BL 50.20*	1	2024-T42 Clad	0.032	–	Replace
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	Replace
	2332011	• • Clip (4 ea.)	1	2024-T42 Clad	0.032	–	Replace

Horizontal Stabilizer Repair Index
Figure 2 (Sheet 3 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
8	2332011	• Rib Assy, LH and RH	1	–	–	–	–
	2332011	• • Rib, BL 65.60	1	2024-T42 Clad	0.032	–	Replace
	2332011	• • Rib Clip	1	2024-T3 Clad	0.032	–	Replace
	2332011	• • Clip (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2332012	• Rib Instl., LH and RH	1	–	–	–	–
9	2332012	• • Rib	1	2024-T42 Clad	0.032	–	Replace
	2332012	• • Clip	1	2024-T42 Clad	0.040	–	Replace
	2332012	• • Clip	1	2024-T3 Clad	0.040	–	Replace
	2332013	• Hinge Instl., Outboard LH & RH	2	–	–	–	–
10	2332013	• • Hinge Assy.	2	–	–	–	–
	2332013	• • • Bracket, Outboard	2	2024-T42 Clad	0.080	–	Replace
	2332013	• • • Bracket, Inboard	2	2024-T42 Clad	0.080	–	Replace
	2332013	• • • Hinge Arm	2	–	–	–	51-71-00
	2332013	• • Filler	2	2024-T3 Clad	0.125	–	Replace
	2332018	• Hinge Instl., Outboard LH & RH	3	–	–	–	–
11	2332018	• • Hinge Assy.	3	–	–	–	–
	2332018	• • • Bracket (2 ea,)	3	2024-T42 Clad	0.071	–	Replace
	2332018	• • • Spacer	3	2024-T3 Clad	0.080	–	Replace
	2332018	• • • Shim, Laminated (Max. 0.032)	3	1	0.003	–	Replace
	2332018	• • • Filler	3	2024-T3 Clad	0.160	–	Replace
	2332018	• • • Hinge Arm	3	2024-T4 Clad	0.250	–	51-71-00
12	2332012	• Rib Tip	1	2024-T42 Clad	0.032	–	Replace
	2332050	• Bracket Instl.	1	–	–	–	–
13	2631512	• • Retainer Assy.	1	–	–	–	Replace
	2631517	• • • Bracket, LH & RH	1	4130 Steel 2	1.300	F8-1	Replace
	2631515	• • • Stud, Dual	1	4130 Steel 2	0.500	–	Replace
	2332050	• • Cap, Upper	1	2024-T42 Clad	0.250	–	Replace
	2332050	• • Cap, Lower	1	2024-T42 Clad	0.250	–	Replace
	2332050	• • Doubler	1	2024-T42 Clad	0.080	–	Replace
	2332050	• • Angle	1	2024-T3 Clad	0.040	–	Replace
	2332050	• • Doubler, LH	1	4130 Steel 2	0.080	–	Replace
	2332050	• • Doubler	1	4130 Steel 2	0.071	–	Replace
	2332050	• • Stiffener	1	S-551	–	–	Replace
	2332050	• • Stop Plate	1	2024-T4 Clad	0.250	–	Replace
	2332050	• • Filler, Laminated (Max. 0.070)	1	1	0.003	–	Replace
	2332050	• • Doubler, LH	1	4130 Steel 2	0.080	–	Replace
	2332050	• • Rib, LH and RH	1	2024-T42 Clad	0.090	–	51-71-00
	2332051	• Gusset Instl.	1	–	–	–	–
14	2332051	• • Gusset	1	2024-T42	0.100	–	Replace
	2332051	• • Doubler	1	2024-T3 Clad	0.100	–	Replace
	2332051	• • Angle	1	S-568	–	–	Replace

Horizontal Stabilizer Repair Index
Figure 2 (Sheet 4 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2332019	• Hinge Instl., Center	5	–	–	–	–
15	2332019	• • Channel	5	2024-T42 Clad	0.071	–	51-71-00
	2332019	• • Clip	5	S-502	–	–	51-71-00
	2332019	• • Filler	5	2024-T42	0.080	–	51-71-00
	2332019	• • Shim, Laminated (Max. 0.063)	5	145H19	0.003	–	51-71-00
	2332019	• • Shim, Laminated (Max. 0.032)	5	145H19	0.003	–	51-71-00
	3532000	• Hinge Instl., LH & RH Center Elevator	6	–	–	–	–
	3532003	• • Hinge Assy. (2 ea.)	6	–	–	–	Replace
15a	3532001	• • • Hinge Arm Assy.	6	–	–	–	Replace
15b	3532001	• • • • Hinge Arm	6	2024-T3 Clad	0.250	–	Replace
	MS27641-4	• • • • Bearing	6	–	–	–	Replace
15c	3532002	• • • • Bracket, Elevator Center Hinge	6	301 Stainless ▷3◁	–	–	Replace
	MS21069L08	• • • • Nutplate	6	–	–	–	Replace
	3532001	• • Filler (2 ea.)	6	2024T3 Clad	0.016	F4-6	Replace
	3532001	• • Spacer	6	2024T3 Clad	0.080	F4-6	Replace
	3532001	• • Shim	6	▷4◁	–	–	Replace
16	2332000	• Stringer, LH and RH, Upper and Lower	1	S-554	–	–	Replace
17	2332000	• Stringer, LH and RH, Upper and Lower	1	S-554	–	–	Replace
18	2332000	• Stringer, LH and RH, Upper and Lower	1	S-554	–	–	Replace
19	2632010	• Leading Edge Assy., LH and RH	1	–	–	–	–
	2632010	• • Skin	1	6061-T6	0.040	–	51-70-02
	2632010	• • Baffle	1	6061-T6	0.032	–	Replace
	2632010	• • Cover, LH Only	1	6061-T6	0.063	–	Replace
	2632010	• • Clip (8 ea.)	1	6061-T6	0.032	–	Replace
	2632011	• • Rib	1	6061-T6	0.032	–	Replace
	2632012	• • Rib	1	6061-T6	0.032	–	Replace
	2632013	• • Rib	1	6061-T6	0.032	–	Replace
	2632014	• • Rib	1	6061-T6	0.032	–	Replace
	2632015	• • Rib	1	6061-T6	0.032	–	Replace
	2632016	• • Rib	1	6061-T6	0.032	–	Replace
	2632010	• • Door, (2 ea.)	1	6061-T6	0.040	–	Replace
	2632010	• Filler (6 ea.)	1	6061-T6	0.080	–	Replace
	2632010	• Door, LH and RH	1	6061-T6	0.040	–	Replace
20	2332014	• Tip Assy., LH and RH	1	–	–	–	–
	2332014	• • Tip Half, Top	1	6061-T4	0.040	–	Replace
	2332014	• • Tip Half, Bottom	1	6061-T4	0.040	–	Replace
21	2332000	• Skin, LH and RH, Upper and Lower	1	2024-T42 Clad	0.050	–	51-70-02

Horizontal Stabilizer Repair Index
Figure 2 (Sheet 5 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
22	2332000	• Cover, LH and RH	1	2024-T42 Clad	0.050	–	Replace
	2332000	• Doubler	1	2024-T3 Clad	0.080	–	Replace
23	2632000	• Skin	1	2024-T3 Clad	0.063	–	51-70-02
24	2331028	• Hinge Pin	1	–	–	–	51-71-00
	2431002	• Stop	1	2024-T4 Clad	0.050	–	Replace
	2431111	• Sleeve	1	–	–	–	Replace
25	2332021	• Fairing, LH and RH	1	–	–	–	Replace

CODES	EFFECTIVITIES
1	35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-001 THRU 35-240; 36-001 THRU 36-044
3	35-241 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
4	35-649 AND SUBSEQUENT; 36-059 AND SUBSEQUENT
5	35-001 THRU 35-676; 36-001 THRU 36-063
6	35-677 AND SUBSEQUENT; 36-064 AND SUBSEQUENT

NOTES

1> Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

2> Condition Normalized.

3> 301 Stainless Steel, 1/4 hard.

4> Made from M22499/1-017 shim stock.

Horizontal Stabilizer Repair Index
Figure 1 (Sheet 6 of 6)

HORIZONTAL STABILIZER - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the horizontal stabilizer structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

HORIZONTAL STABILIZER - REPAIR

1. GENERAL
   A. It is the responsibility of the aircraft owner/maintenance facility to determine qualifications of maintenance personnel performing repair procedures. As always, a clean environment and good general shop practices shall be exercised any time repairs are performed on the aircraft.
   B. Prior to, and after performing, any repairs on the horizontal stabilizer, ensure serviceability and reliability of part. If serviceability and/or reliability of any part or repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information.
   C. Repairs must be equal to, or greater in strength, than the original structure. Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   D. Repairs for structure not included in this section does not necessarily indicate that the structure involved is non-repairable, but that the application of a typical repair procedure to theoretical damage has not yet been developed.
   E. Refer to Chapter 51 for allowable wear and repair data, and for standard repair procedures not specified in this section.
   F. Following any repair or maintenance procedures on the aircraft structure/components, update all aircraft log books as required.
   G. Following any repair or maintenance procedures on the aircraft structure/components, ensure inspection records pertaining to any specific repair-related procedure are identified, properly documented and closely adhered too.
   H. All parts fabricated by the repair facility shall be identified for future reference. Marking of parts shall be accomplished in a manner which does not effect the serviceability and reliability of the part.

2. LIMITATIONS AND INSPECTIONS
   A. Limitations
      (1) Learjet engineering approved repairs to the horizontal stabilizer are limited to those items/areas outlined in step 4., REPAIR PROCEDURES.
      (2) Limitations applied to repairs in this section must be followed unless Learjet engineering authority to the contrary is given.
      (3) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. Cracks in any fitting or forging are not allowed. Fittings or forgings with bushing shall be repaired.

3. MATERIALS AND PROCESSES
   A. Materials
      (1) Repair materials and required treatments or processes will be listed in the repair procedure. Material or treatment variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   B. Processes
      (1) Refer to Chapter 51 for chemical process and treatment specifications.

4. REPAIR PROCEDURES

NOTE: All dimensions are in inches unless otherwise specified.

A. Horizontal Stabilizer Rear Spar Cap Repair (See Figure 201.)

NOTE:
- Repair procedures for both upper and lower horizontal stabilizer rear spar caps are identical unless otherwise specified.
- Fasteners common to spar cap and ribs may require special attention to reduce deformation of rib flange during removal of cap.

(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Drill	#5	Commercially available	Drill holes for rivets
Drill	#11	Commercially available	Drill holes for rivets
Drill	#15	Commercially available	Drill holes for rivets
Drill	#26	Commercially available	Drill holes for rivets
Drill	1/8	Commercially available	Drill holes for rivets
Drill	13/64	Commercially available	Drill holes for rivets

(2) Parts and Materials

NOTE:
- Quantities listed below are per spar cap.
- Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Spar Cap	2332010-15	Learjet Inc. Wichita, KS	Replacement part.
Rivet (14 ea.)	MS20426AD4	Commercially available	Secure spar to structure
Rivet (70 ea.)	MS20426AD5	Commercially available	Secure spar to structure

12335-004

NAME	PART NUMBER	MANUFACTURER	USE
Rivet (5 ea.)	MS20426AD6	Commercially available	Secure spar to structure
Rivet (1 ea.)	CR32425-3	Commercially available	Secure spar to structure
Rivet (6 ea.)	CR32435-5	Commercially available	Secure spar to structure
Rivet (6 ea.)	CR32435-4	Commercially available	Secure spar to structure
Rivet (12 ea.)	CR32434-3	Commercially available	Secure spar to structure
Rivet (30 ea.)	CR32435-3	Commercially available	Secure spar to structure
Rivet (33 ea.)	CR32436-3	Commercially available	Secure spar to structure
Pin (2 ea.)	HL56-6-9	Commercially available	Secure spar to structure
Pin (4 ea.)	HL20-6-4	Commercially available	Secure spar to structure
Pin (4 ea.)	HL57-6-4	Commercially available	Secure spar to structure
Collar (4 ea.)	HL87-6	Commercially available	Secure spar to structure
Collar (6 ea.)	HL83-6	Commercially available	Secure spar to structure

(3) Repair Procedure: (See Figure 201.)

NOTE: Ensure proper riveting procedures, as outlined in chapter 51, are closely followed and adhered to while performing the following task.

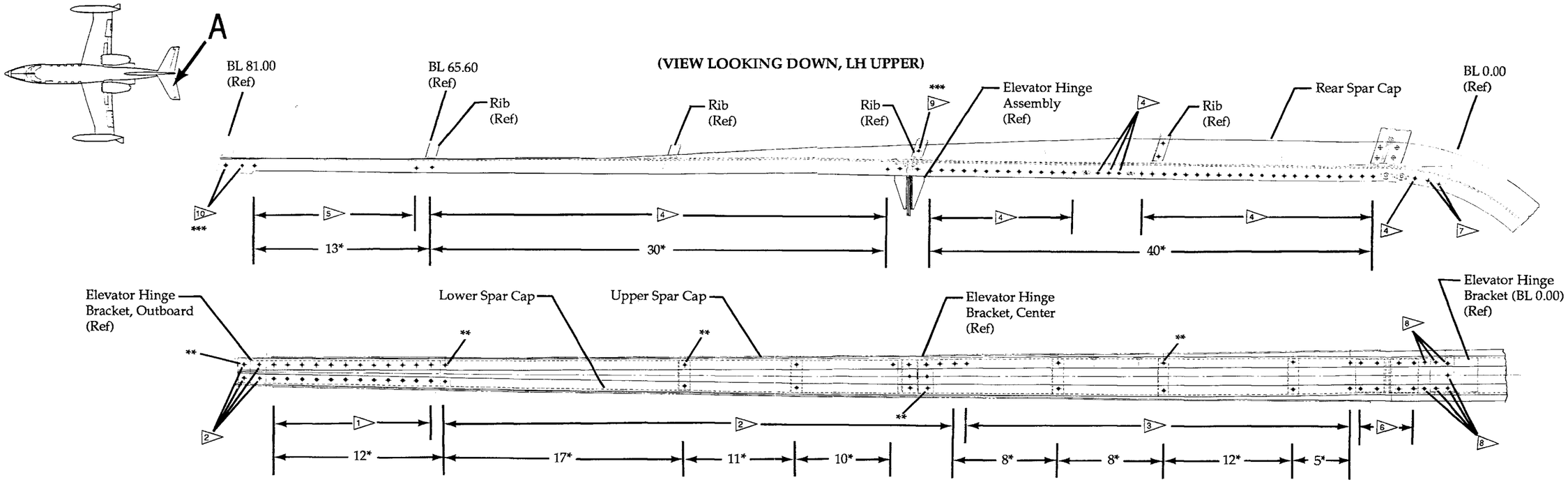
(a) Remove applicable elevator assembly from aircraft. (Refer to the basic Learjet Maintenance Manual.)

CAUTION: USE EXTREME CARE NOT TO DEFORM FASTENER HOLES DURING REMOVAL. REFER TO STANDARD PRACTICES, CHAPTER 51, FOR APPROPRIATE PROCEDURES.

(b) Remove elevator hinge brackets from spar assembly.

CAUTION: FASTENERS COMMON TO SPAR CAP AND RIBS REQUIRE ATTENTION TO PREVENT DEFORMATION OF RIB FLANGE DURING SPAR CAP REMOVAL. REFER TO CHAPTER 51, STANDARD RIVETING PROCEDURES.

(c) Remove remaining fasteners from rear spar cap. Slide spar cap aft and remove from aircraft.
(d) Position new spar cap in alignment with existing fastener holes. Ensure edge distance is maintained as noted in Table 201 of Figure 201.
(e) Secure spar cap in place with clamps. Using existing structure as a pattern, backdrill random spaced holes and install Clecos. Verify edge distance is maintained, and backdrill remaining holes.
(f) Install Clecos through upper and lower bracket flanges to secure spar cap and elevator hinge brackets to structure.
(g) Temporarily install elevator. Verify hinge alignment.
(h) Remove elevator. Install fasteners in spar cap and hinge brackets as noted in Figure 201.
(i) Touch up paint as required. (Refer to the basic Learjet Maintenance Manual.)
(j) Install elevator and perform adjustment/test. (Refer to the basic Learjet Maintenance Manual.)
(k) Update all aircraft log books to indicate that *Horizontal Stabilizer Rear Spar Cap Field Replacement #12335-004* has been incorporated.
(l) Restore aircraft to normal.



(VIEW LOOKING FWD, LH SIDE)

(LH SHOWN, RH OPPOSITE)

Detail A

Horizontal Stabilizer Rear Spar Cap – Repair
Figure 201

* Number of fasteners equally spaced.

** Fasteners common to spar cap and ribs require attention to prevent deformation of rib flange during spar removal.

*** Install Clecos through upper and lower bracket flanges to secure hinge brackets to structure during temporary elevator alignment verification.

Horizontal Stabilizer Rear Spar Cap Fasteners
Table 201

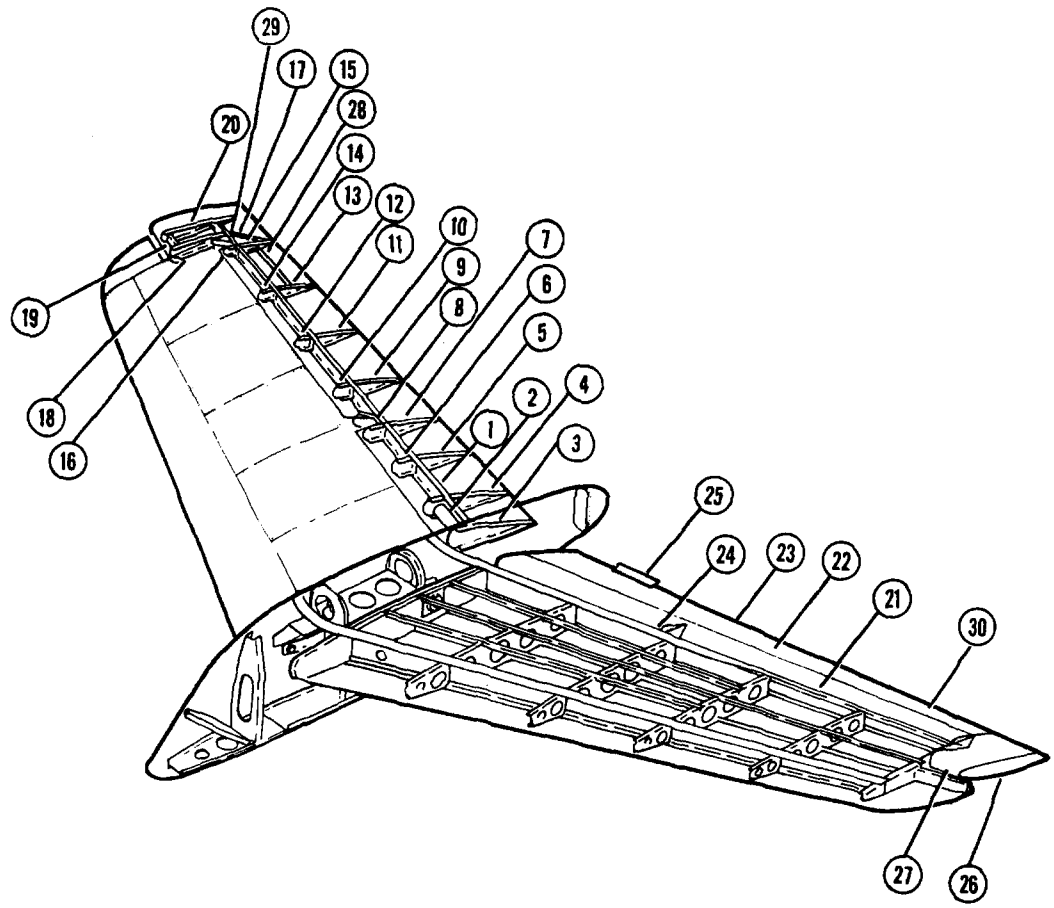
	Hole Dia.	Fastener	Edge Distance
1	0.146/0.143	CR32434	0.250
2	0.180/0.176	CR32435	0.310
3	0.205/0.200	CR32436	0.310
4	0.156	MS20426AD5	0.300
5	0.125	MS20426AD4	0.300
6	0.190/0.187	HL20-6-4 PIN	
		HL87-6 COLLAR	0.310
7	0.203/0.200	HL56-6-9 PIN	
		HL83-6 COLLAR	0.310
8	0.187	MS20470AD6	0.310
9	0.205/0.200	CR32425	0.310
10	0.203/0.200	HL57-6-4 PIN	
		HL83-6 COLLAR	0.310

ELEVATOR - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. Each elevator is connected to the horizontal stabilizer at three hinge points. The elevator structure consists of ribs and spars covered with skin. Counterbalance weights are located in the leading edge of the tip cover. An access cover located on the leading edge of the elevator provides access to the center hinge point.



Elevator Repair Index
Figure 1 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2334001	• Elevator Assy., LH and RH	1	–	–	–	–
1	2334001	• Spar	1	2024-T42 Clad	0.063	F4-1	51-70-03
2	2334001	• • Torque Tube Weld Assy.	1	–	–	1	–
	2334001	• • • Torque Tube	1	4130 Steel 4	–	F4-1	Replace
	2334001	• • • Rib (2 ea.)	1	4130 Steel 3	–	F4-1	Replace
3	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
4	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
5	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
6	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
7	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Angle	1	2024- T42 Clad	0.032	F4-1	Replace
8	2334001	• • Hinge Bracket	10	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Hinge Bracket	11	4130 Steel 2	0.032	F-8	Replace
	2334001	• • Hinge Bracket	10	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Hinge Bracket	11	4130 Steel 2	0.032	F-8	Replace
	2334001	• • Angle	1	S-608	–	F4-1	Replace
9	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
10	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
11	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
12	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
13	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Channel	4	2024-T42 Clad	0.040	F4-1	Replace
14	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
15	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Angle	1	2024-T42 Clad	0.032	F4-1	Replace
16	2334001	• • Hinge Bracket	12	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Hinge Bracket	13	4130 Steel 2	0.032	F-8	Replace
	2334001	• • Angle	1	S-608	–	F4-1	–
17	2334001	• • Rib (2 ea.)	16	2024-T42 Clad	0.032	F4-1	Replace
	2334001	• • Clip	16	2024-T3 Clad	0.040	F4-1	Replace
18	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
19	2334001	• • Rib	1	4130 Steel 3	0.080	F-8	Replace
	2334001	• • Weight	7	5% Sb Lead	–	–	Replace
20	2334001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
21	2334001	• • Skin, Leading Edge (Inbd & Outbd)	8	2024-T42 Clad	0.032	F1 ext F14-1 int	51-70-02
	2334001	• • Skin, Leading Edge (Inbd & Outbd)	9	2024-T3 Clad	0.032	F1 ext F14-1int	51-70-02
22	2334001	• • Skin, Trailing Edge, LH Upper, RH Lower	1	2024-T3 Clad	0.025	F4-6 ext F4-1 int	51-70-02
	2334001	• • Skin, Trailing Edge, RH Upper, LH Lower	1	2024-T3 Clad	0.025	F4-6 ext F4-1 int	51-70-02

Elevator Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
23	2334001	• • Extrusion, Trailing Edge	17	S-649	–	–	Replace
24	2334001	• • Door	1	2024-T3 Clad	0.032	F-1 ext F14-1int	Replace
	2334001	• • Doubler	1	2024-T42 Clad	0.063	F4-1	Replace
	2334001	• • Fairing	9	6061-0	0.020	F1 ext F14-1int	Replace
25	2334001	• • Trailing Tab	14	2024-T3 Clad	0.050	F4-1	Replace
	2434001	• • Trailing Tab	15	2024-T42 Clad	0.050	F1	Replace
26	2334001	• • Tip Weld Assy	1	–	–	–	–
	2334001	• • • Tip Half, Upper and Lower	1	6061-T6	0.040	–	Replace
27	2334001	• • Weight	5	Grade "B" Lead	–	–	Replace
	2334001	• • Weight	6	5% Sb Lead	–	–	Replace
28	2334001	• • Angle	2	S626 BU-8		F-1	Replace
29	2334001	• • Stub Spar	8	2024-T42	0.025	F4-1	Replace
30	2334001	• • Spoiler Tab, Lower	3	2024-T42	0.050	F4-6	Replace
	2334001	• • Spoiler Tab, Upper	3	2024-T42	0.080	F4-6	Replace

Elevator Repair Index
Figure 1 (Sheet 3 of 4)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-101 THRU 24-357; 25-002 THRU 25-373
2	24-100 THRU 24-103, 24-105 THRU 24-119; 25-002 THRU 25-373
3	23-003 THRU 23-099; 24-100, 24-101, 24-103 THRU 24-105, 24-107 THRU 24-109
4	24-120 THRU 24-357; 25-002 THRU 25-373
5	23-003 THRU 23-015
6	23-016 THRU 23-357; 24-101 THRU 24-357; 25-002 THRU 25-373
7	24-110 THRU 24-357; 25-002 THRU 25-373
8	23-003 THRU 23-099; 24-100 THRU 24-121
9	24-122 THRU 24-357; 25-002 THRU 25-373
10	23-003 ONLY
11	23-004 THRU 23-099; 24-002 THRU 24-357; 25-002 THRU 25-373
12	23-003 THRU 23-017
13	23-018 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
14	24-122, 24-133, 24-140 THRU 24-357; 25-002 THRU 25-373 AND PRIOR MODEL 23/24 SERIES AIRCRAFT MODIFIED FOR 45,000 FEET OPERATION
15	24-140 THRU 24-357; 25-002 THRU 25-373 MODIFIED PER SSK995; AND 23-003 THRU 23-099 AND 24-100 THRU 24-139 WHEN MODIFIED FOR 45,000 FEET OPERATION AND MODIFIED PER SSK995
16	24-122 THRU 24-357; 25-002 THRU 25-373
17	24-102, 24-106, 24-110 THRU 24-357; 25-002 THRU 25-373

NOTES

1. 23-006 THRU 23-029, F8-1
   23-030 THRU 23-357; 24-101 THRU 24-357; 25-002 THRU 25-373, F8-6 External, F1-2 Internal
   23-002 THRU 23-005, Refer to Service Bulletin 23-49

2. Condition Normalized at 95,000 psi minimum.

3. Condition Annealed at 95,000 psi minimum.

4. Condition Normalized.

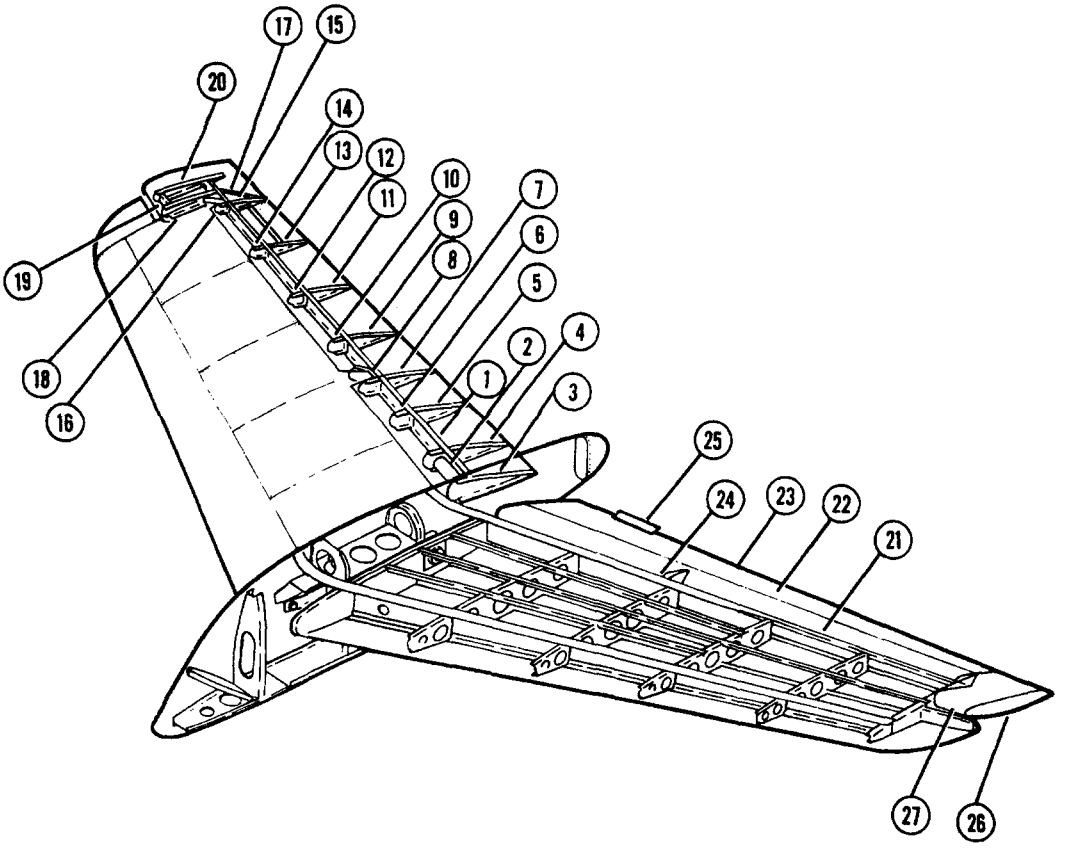
Elevator Repair Index
Figure 1 (Sheet 4 of 4)

ELEVATOR - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. Each elevator is connected to the horizontal stabilizer at three hinge points. The elevator structure consists of ribs and spars covered with skin. Counterbalance weights are located in the leading edge of the tip cover. An access cover located on the leading edge of the elevator provides access to the center hinge point.



5-21B1

Elevator Repair Index
Figure 2 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2434000	• Elevator Assy, LH and RH	1	–	–	–	–
1	2434001	• Spar	1	2024-T42 Clad	0.063	F4-1	51-70-03
2	2434003	• • Torque Tube Weld Assy.	1	–	–	F8-6 ext F15 int	–
	2434003	• • • Torque Tube	1	4130 Steel [1]	–	–	Replace
	2434003	• • • Rib (2 ea.)	1	4130 Steel [2]	–	–	Replace
3	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2434001	• • Angle	1	S-706	–	–	Replace
4	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
5	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
6	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
7	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2434001	• • Angle	1	2024-T42 Clad	0.032	F4-1	Replace
8	2434001	• • Hinge Bracket (2 ea.)	1	4130 Steel [2]	0.032	F-8	Replace
	2434001	• • Angle	1	S-608	–	F4-1	Replace
9	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
10	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
11	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
12	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
13	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2434001	• • Channel	1	2024-T42 Clad	0.040	F4-1	Replace
14	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
15	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2434001	• • Angle	1	2024-T42 Clad	0.032	F4-1	Replace
16	2434001	• • Hinge Bracket (2 ea.)	1	4130 Steel [2]	0.032	F-8	Replace
17	2434001	• • Angle	1	S-608	–	F4-1	–
	2434001	• • Rib (2 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
18	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2434001	• • Angle	1	4130 Steel [1]	0.032	F-8	Replace
19	2434001	• • Rib	1	4130 Steel [2]	0.080	F-8	Replace
	2434001	• • Weight	1	5% Sb Lead	–	–	Replace
20	2434001	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2434001	• • Angle	1	S-608	–	F4-1	Replace
21	2434000	• • Skin, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-02
22	2434000	• • Skin, Trailing Edge, LH Upper, RH Lower	1	2024-T3 Clad	0.025	F4-6 ext F4-1 int	51-70-02
	2434000	• • Skin, Trailing Edge, RH Upper, LH Lower	1	2024-T3 Clad	0.025	F4-6 ext F4-1 int	51-70-02
23	2434001	• • Extrusion, Trailing Edge	1	S-649	–	–	Replace
24	2434001	• • Door	1	2024-T3 Clad	0.032	F-1 ext F14-1int	Replace
	2434001	• • Doubler	1	2024-T3 Clad	0.032	F4-1	Replace
	2434001	• • Doubler	1	2024-T42 Clad	0.071	F4-1	Replace
	2434001	• • Fairing	1	6061-0	0.025	F1 ext F14-1int	Replace

Elevator Repair Index
Figure 2 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
25	2434001	• • Trailing Tab	1	2024-T42 Clad	0.050	F4-1	Replace
26	2434002	• • Tip Weld Assy.	1	–	–	–	–
	2434002	• • • Tip Half, Upper and Lower	1	6061-0	0.040	T6	Replace
27	2434001	• • Weight	1	5% Sb Lead	–	–	Replace

CODES **EFFECTIVITIES**

1 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

NOTES

1 Condition Normalized.

2 Condition Annealed.

Elevator Repair Index
Figure 2 (Sheet 3 of 3)

ELEVATOR - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the elevator structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

ELEVATOR - REPAIR

1. APPROVED REPAIRS

WARNING: A CONTROL SURFACE BALANCE CHECK MUST BE PERFORMED FOLLOWING REPAIR OF THE ELEVATOR. (REFER TO SECTION II OF THE BASIC LEARJET SERVICE MANUAL FOR MODEL 23, 24 AND 25 SERIES AIRCRAFT. REFER TO CHAPTER 27 OF THE BASIC LEARJET MAINTENANCE MANUAL FOR MODEL 28, 29, 31, 35 AND 36 SERIES AIRCRAFT.)

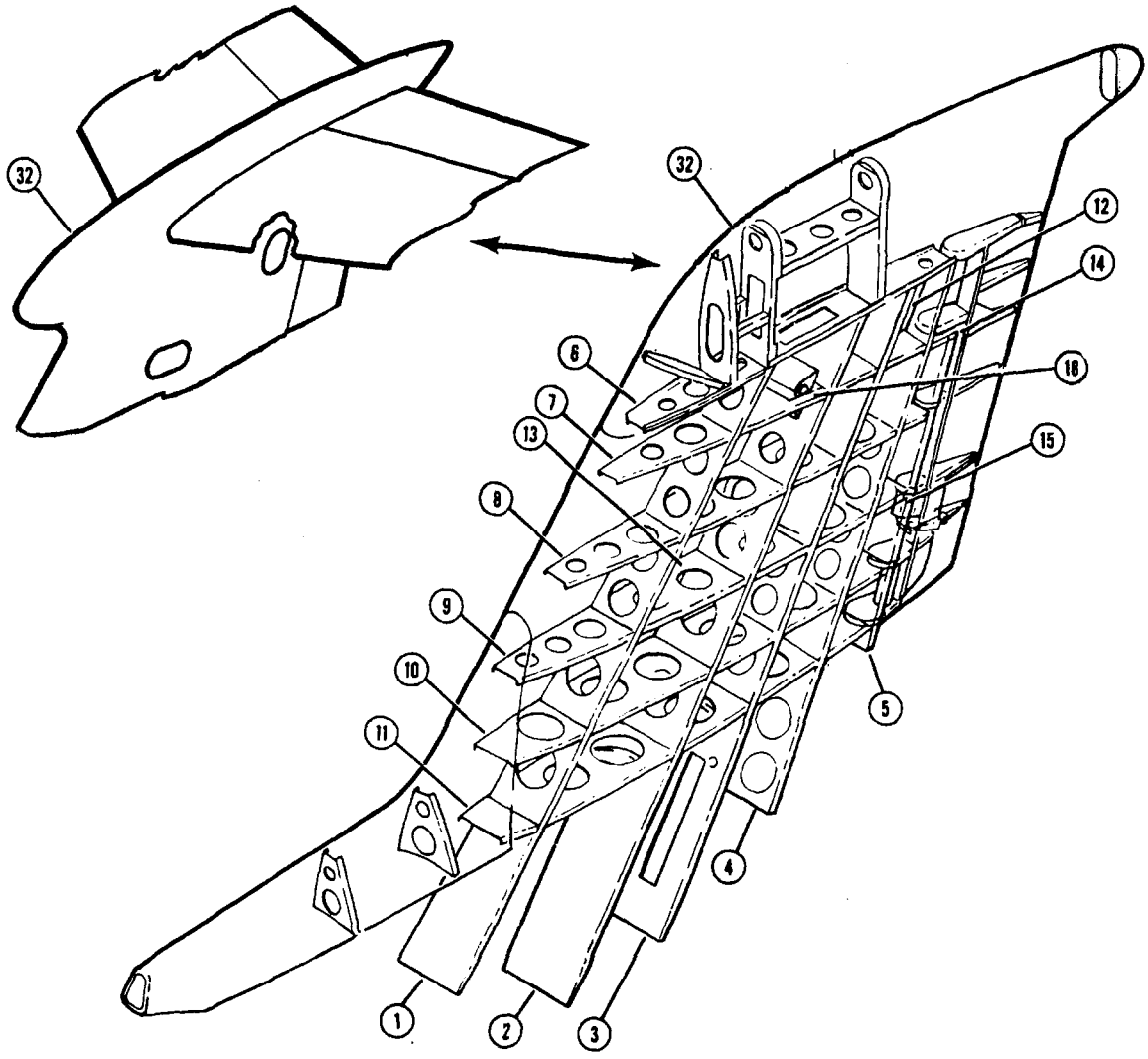
A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the elevator assemblies fittings and attaching parts.

VERTICAL STABILIZER - STRUCTURAL IDENTIFICATION

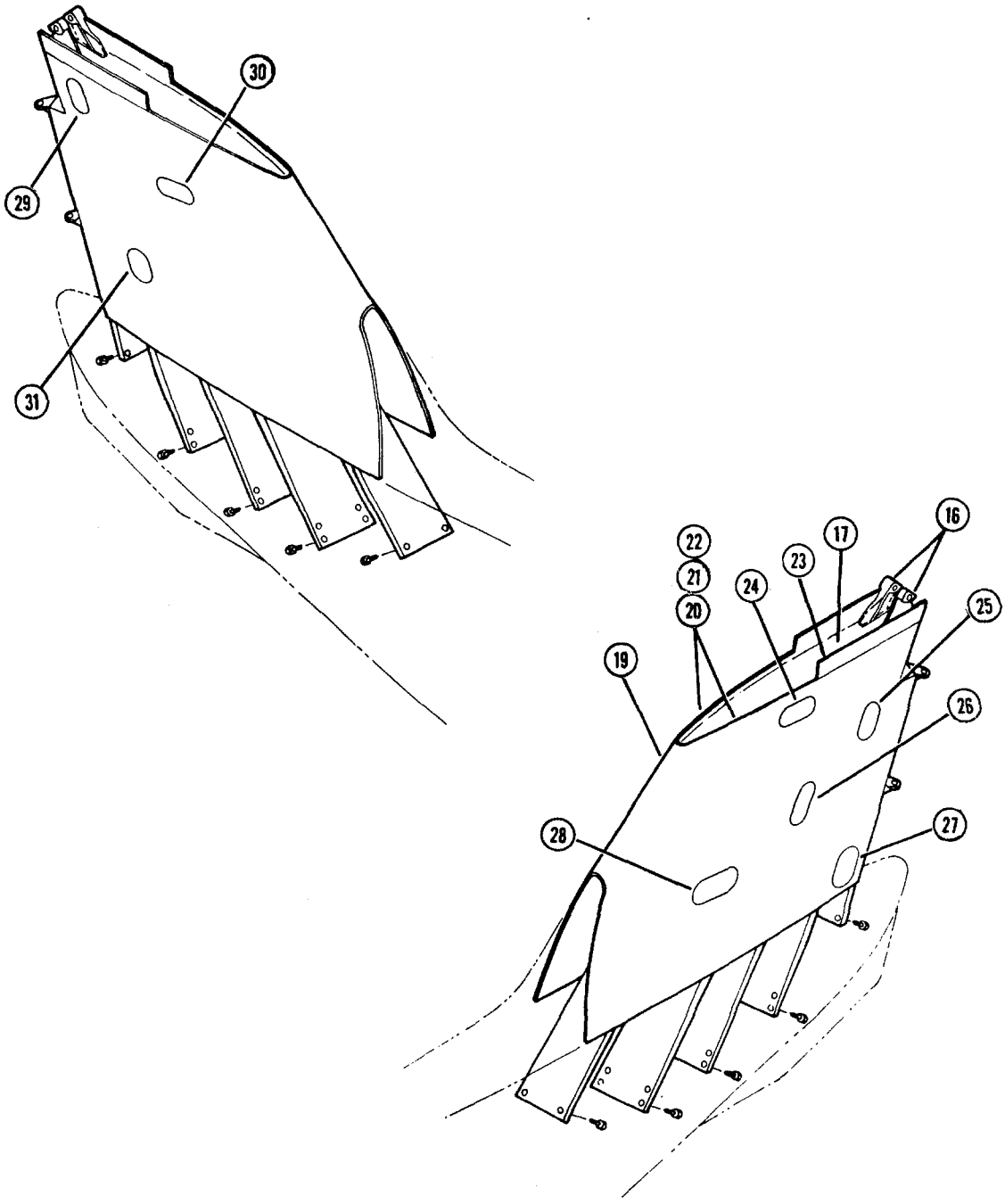
1. DESCRIPTION

NOTE The Following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. The vertical stabilizer structure consists of spars and ribs covered with skin. Access covers located on the vertical stabilizer provide access for structural inspection and access to electrical wiring, horizontal stabilizer actuator, elevator controls, and rudder hinges. Attach fittings for the rudder and horizontal stabilizer are located on the vertical stabilizer.



Vertical Stabilizer Repair Index
Figure 1 (Sheet 1 of 7)



5–14C-1

Vertical Stabilizer Repair Index
Figure 1 (Sheet 2 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2331001	Vertical Fin Assembly	2	–	–	–	–
	2431000	Vertical Fin Assembly	3	–	–	–	–
	2531000	Vertical Fin Assembly	10	–	–	–	–
	2531000	Vertical Fin Assembly	4	–	–	–	–
1	2531012	• Spar Assy., No. 1	1	–	–	–	–
	2531012	• • Angle	1	2024-T42	0.063	F4-1	Replace
	2531012	• • Spar Web	1	2024-T42	0.050	F4-1	Replace
	2531012	• • Doubler	1	2024-T42	0.063	F4-1	Replace
2	2331006	• Spar Assy., No. 2	1	–	–	–	–
	2331006	• • Angle	1	S-568	–	–	Replace
	2331006	• • Cap, LH	1	S-588	–	–	Replace
	2331006	• • Cap, RH	1	S-588	–	–	Replace
	2331006	• • Shim	1	2024-T3 Clad	0.100	F4-1	Replace
	2331006	• • Doubler	1	2024-T3 Clad	0.080	F4-1	Replace
	2331006	• • Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2331006	• • Angle (2 ea.)	1	4130 Steel [1]	0.125	F4-1	Replace
	2331006	• • Web	1	2024-T3 Clad	0.050	F4-1	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	F4-1	Replace
	S-151-1	• • Clip	1	–	–	–	Replace
3	2331006	• Spar Assy., No. 3	1	–	–	–	–
	2331006	• • Stiffener	1	S-575	–	–	Replace
	2331006	• • Spacer	1	2024-T3 Clad	0.190	F4-1	Replace
	2331006	• • Doubler	1	2024-T3 Clad	0.025	F4-1	Replace
	2331006	• • Bracket (2 ea.)	1	S-591	0.125	–	Replace
	2331006	• • Web	1	2024-T3 Clad	0.050	F4-1	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	F4-1	Replace
	2331006	• • Cap (2 ea.)	1	S-589	–	–	Replace
	2331006	• • Web	1	2024-T4 Clad	0.040	F4-1	Replace
4	2331007	• Spar Assy., No. 4	1	–	–	–	–
	2331007	• • Spar Cap (2 ea.)	1	S-590	–	–	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	F4-1	Replace
	2331007	• • Plate	1	2024-T351 Clad	0.250	F4-1	Replace
	2331007	• • Filler	1	2024-T3 Clad	0.090	F4-1	Replace
	2331007	• • Filler, LH	1	2024-T351 Clad	0.250	F4-1	Replace
	2331007	• • Filler, RH	1	2024-T351 Clad	0.250	F4-1	Replace
	2331007	• • Filler	1	2024-T3 Clad	0.120	F4-1	Replace
	2531539	• • Bracket, Downspring	1	2024-T4	1.100	F4-1	Replace
	2331007	• • Doubler	1	2024-T3 Clad	0.050	F4-1	Replace
	2331007	• • Web	1	2024-T3 Clad	0.040	F4-1	Replace
	2331007	• • Filler (2 ea.)	5	2024-T3 Clad	0.120	F4-1	Replace
5	2331007	• Spar, Rear	1	2024-T42 Clad	0.063	F4-1	Replace
	2531011	• Rib Instl.	–	–	–	–	–

Vertical Stabilizer Repair Index
Figure 1 (Sheet 3 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
6	2431012	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2431012	• • Rib Cap, LH	1	S551	–	–	Replace
	2431012	• • Rib Cap, RH	1	S551	–	–	Replace
	2431012	• • Rib Web	1	2024-T3 Clad	0.050	F4-1	Replace
	2431012	• • Doubler	1	2024-T42 Clad	0.032	F4-1	Replace
	2431012	• • Angle (2 ea.)	1	2024-T42 Clad	0.063	F4-1	Replace
	2431012	• • Filler (2 ea.)	1	2024-T3 Clad	0.080	F4-1	Replace
	2431012	• • Doubler	1	2024-T3 Clad	0.125	F4-1	Replace
	2331016	• Rib Instl.	–	–	–	–	–
7	2331016	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331016	• • Stiffener (2 ea.)	1	S-549	–	–	Replace
	2331016	• • Rib	1	2024-T42 Clad	0.050	F4-1	Replace
	2331016	• • Angle	6	2024-T42 Clad	0.063	F4-1	Replace
	2331016	• • Angle	7	2024-T42 Clad	0.040	F4-1	Replace
	2331016	• • Angle	7	2024-T42 Clad	0.040	F4-1	Replace
	2331016	• • Doubler	8	2024-T3 Clad	0.040	F4-1	Replace
	2331016	• • Attach Angle	1	2024-T42 Clad	0.032	F4-1	Replace
	2331015	• Rib Instl.	–	–	–	–	–
8	2331015	• • Rib (5 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331015	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331014	• Rib Instl.	–	–	–	–	–
9	2331014	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331014	• • Rib	1	2024-T42 Clad	0.050	F4-1	Replace
	2331014	• • Angle	1	2024-T42 Clad	0.050	F4-1	Replace
	2331014	• • Gusset	1	2024-T3	0.063	F4-1	Replace
	2331014	• • Angle (3 ea.)	7	2024-T42 Clad	0.040	F4-1	Replace
	2331013	• Rib Instl.	–	–	–	–	–
10	2331013	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331013	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331013	• • Rib	7	2024-T42 Clad	0.032	F4-1	Replace
	2331013	• • Angle	7	2024-T42 Clad	0.040	F4-1	Replace
11	2331008	• Rib Assy.	–	–	–	–	–
	2331008	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331008	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331008	• • Angle	7	2024-T42 Clad	0.040	F4-1	Replace
12	2331033	• Rib	1	2024-T42 Clad	0.063	F4-1	Replace
13	2331040	• Channel Assy., Antenna	1	–	–	–	–
	2331040	• • Channel	1	2024-T3 Clad	0.050	F4-1	Replace
	2331040	• • Doubler	1	2024-T3 Clad	0.050	F4-1	Replace
	2331040	• Channel Assy., Antenna	1	–	–	–	–
	2331040	• • Channel	1	2024-T3 Clad	0.050	F4-1	Replace
	2331040	• • Doubler	1	2024-T3 Clad	0.050	F4-1	Replace

Vertical Stabilizer Repair Index
Figure 1 (Sheet 4 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
14	2331030	• Hinge Assy.	1	–	–	–	–
	2331030	• • Bracket	1	2024-T42 Clad	0.071	F4-1	Replace
	2331030	• • Plate	1	2024-T3 Clad	0.100	F4-1	Replace
	2331030	• • Hinge Arm	1	2024-T4 Clad	0.250	F4-1	51-71-00
	2331030	• Filler	1	2024-T3 Clad	0.100	F4-1	Replace
15	2331031	• Hinge Assy.	–	–	–	–	–
	2331031	• • Bracket	1	2024-T42 Clad	0.071	F4-1	Replace
	2331031	• • Bracket	1	2024-T42 Clad	0.071	F4-1	Replace
	2331031	• • Hinge Arm	1	2024-T4 Clad	0.250	F4-1	51-71-00
	2331031	• Filler	1	2024-T3 Clad	0.040	F4-1	Replace
16	2331025	• Hinge, LH	1	–	–	–	51-71-00
	2331025	• Hinge, RH	1	–	–	–	51-71-00
17	2331001	• Plate	2	2024-T3	0.250	F4-1	Replace
	2431003	• Plate Assy.	–	–	–	–	–
	2431003	• • Plate	10	2024-T42 Clad	0.250	F4-1	Replace
18	2431003	• Web Assy.	–	–	–	–	–
	2431003	• • Web	21	2024-T42 Clad	0.080	F4-1	Replace
	2331001	• Shim	20	2024-T3 Clad	0.050	F4-1	Replace
	2431003	• Shim	10	2024-T3 Clad	0.050	F4-1	Replace
	2331001	• Filler	19	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Filler	17	2024-T3 Clad	0.080	F4-1	Replace
	2331001	• Skin Doubler	18	301 Stainless	0.020	F4-1	Replace
	2431003	• Skin Doubler	17	301 Stainless	0.020	F4-1	Replace
	2331001	• Plate, LH	2	2024-T3 Clad	0.080	F4-1	Replace
	2331001	• Plate, RH	2	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Plate, LH	17	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Plate, RH	17	2024-T3 Clad	0.080	F4-1	Replace
	2331001	• Stiffener, Angle, LH & RH	22	S554	–	–	Replace
	2431003	• Stiffener, Angle, LH & RH	23	S554	–	–	Replace
	2431005	• Attach Angle (2 ea.)	24	2024-T42	0.040	F4-1	Replace
	2431005	• Skin Support	24	2024-T42	0.040	F4-1	Replace
	2331001	• Stop	1	2024-T4 Clad	0.500	F4-1	Replace
19	2331001	• Skin, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-02
	2388320	• Antenna Cable Support	1	[2]	0.040	F4-1	Replace
20	2331001	• Skin, LH	14	2024-T42 Clad	0.040	F4-1	Replace
	2331001	• Skin, RH	14	2024-T42 Clad	0.040	F4-1	Replace
21	2331001	• Skin, LH	15	2024-T42 Clad	0.040	F1ext F14-1int	Replace
	2331001	• Skin, RH	15	2024-T42 Clad	0.040	F1ext F14-1int	Replace
22	2331001	• Skin, LH	16	2024-T42 Clad	0.050	F1ext F14-1int	Replace
	2331001	• Skin, RH	16	2024-T42 Clad	0.050	F1ext F14-1int	Replace
23	2331001	• Skin, LH	13	2024-T42 Clad	0.063	F4-1	Replace

Vertical Stabilizer Repair Index
Figure 1 (Sheet 5 of 7)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2331001	• Skin, RH	13	2024-T42 Clad	0.063	F4-1	Replace
24	2331023	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331023	• Doubler	1	2024-T3 Clad	0.063	F4-1	Replace
25	2331032	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331032	• Doubler	1	2024-T3 Clad	0.063	F4-1	Replace
26	2331038	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331038	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
27	2331059	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331059	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
28	2331037	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331037	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
29	2331058	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331058	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
30	2331060	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331060	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
31	2331057	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331057	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
32	2431105	• Fin Tip Instl. - See Figure 4	–	–	–	–	–

Vertical Stabilizer Repair Index
Figure 1 (Sheet 6 of 7)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
2	23-002 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218; 25-002 THRU 25-066, EXCEPT 25-061
3	24-218, 24-230 THRU 24-357 (D MODEL)
4	24-206 THRU 24-357 (F MODEL), 25-067 THRU 25-373
5	25-287 THRU 25-373
6	25-002 THRU 25-373
7	24-160; 25-011 THRU 25-373
8	25-373, 25-342 THRU 25-373
9	23-090 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
10	25-061, 25-067 THRU 25-373
11	23-002 THRU 23-099; 24-100 THRU 24-357
12	25-002 THRU 25-373
13	23-002 THRU 23-093
14	23-094 THRU 23-099; 24-100 THRU 24-191
15	24-192 THRU 24-357
16	25-002 THRU 25-373
17	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373
18	23-030 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218; 25-002 THRU 25-066, EXCEPT 25-061
19	24-192 THRU 24-229, EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
20	23-057 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-066, EXCEPT 25-061
21	24-218, 24-230 THRU 24-357
22	23-090 THRU 23-099; 24-100 THRU 24-229, EXCEPT 24-218; 25-002 THRU 25-066, EXCEPT 25-061
23	25-061, 25-067 THRU 25-074
24	25-075 THRU 25-373

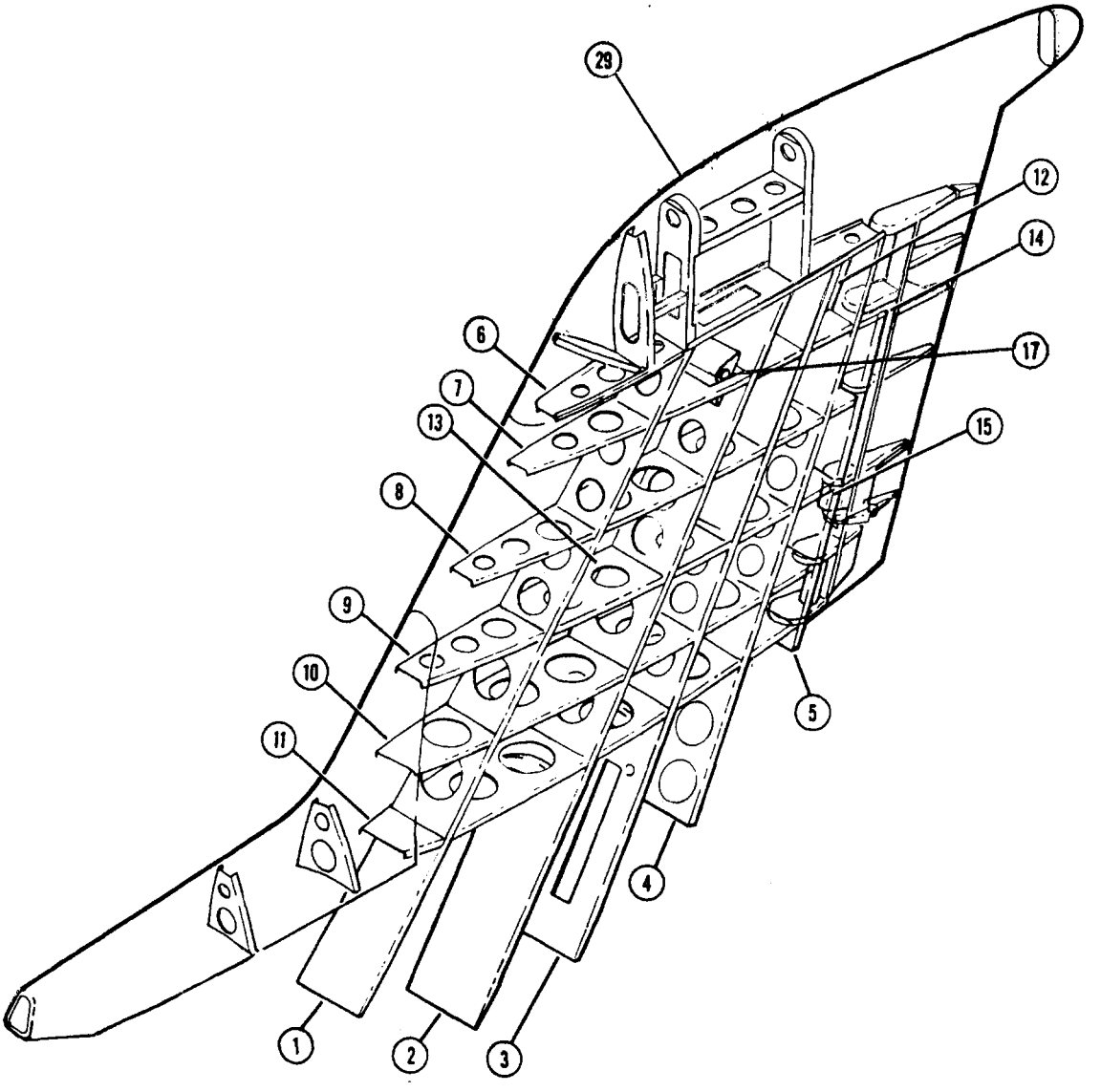
NOTES

1> Condition Normalized, heat treat to 125,000 -150,000 psi.

2> 301 Stainless 1/2 Hard.

Vertical Stabilizer Repair Index
Figure 1 (Sheet 7 of 7)

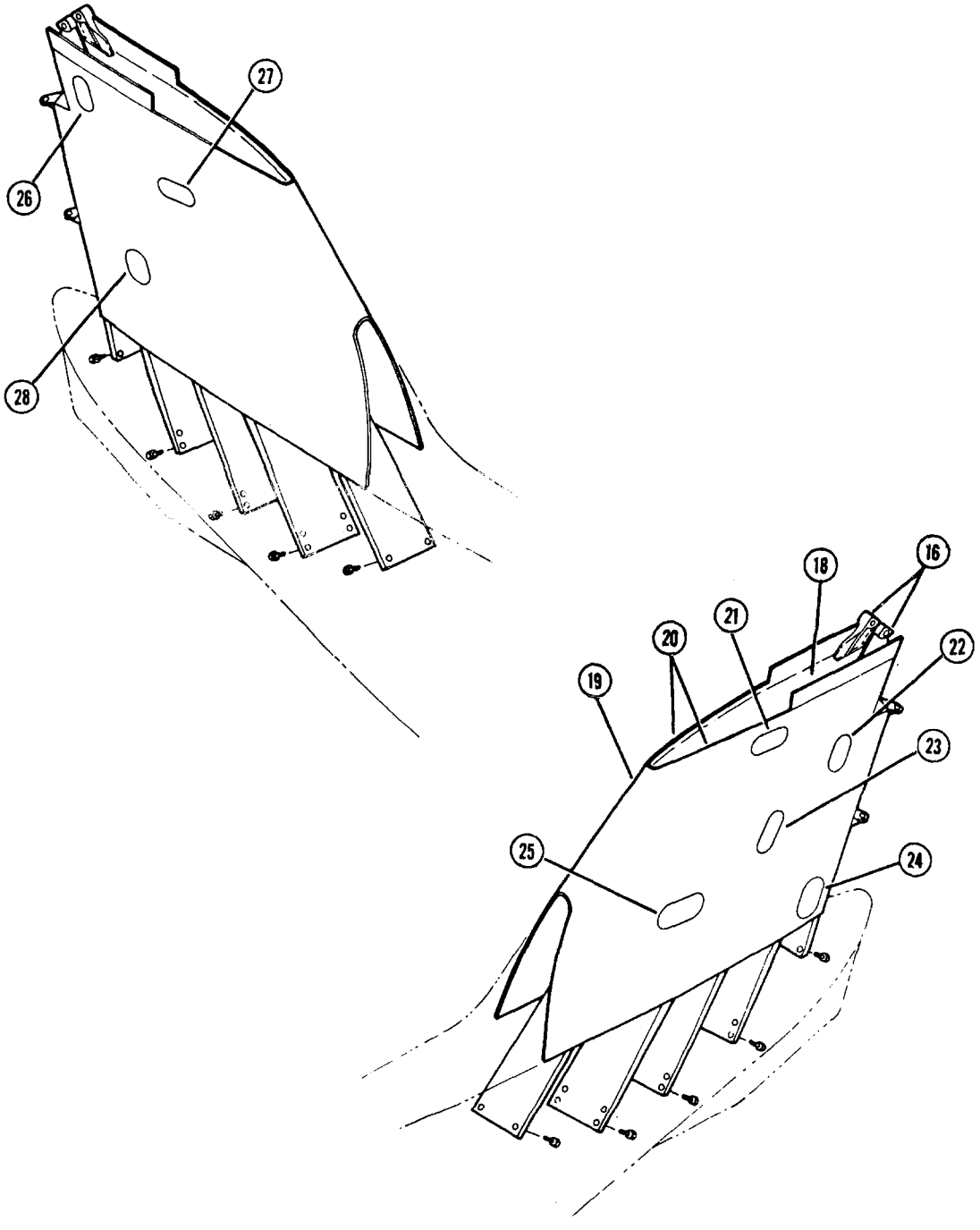
VERTICAL STABILIZER - STRUCTURAL IDENTIFICATION



5-6A
5-21B-2

Vertical Stabilizer Repair Index
Figure 2 (Sheet 1 of 6)

VERTICAL STABILIZER - STRUCTURAL IDENTIFICATION



5-14C-1

Vertical Stabilizer Repair Index
Figure 2 (Sheet 2 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2531000	Vertical Fin Assembly	1	–	–	–	–
1	2531012	• Spar Assy, No. 1	1	–	–	–	–
	2531012	• • Angle	1	2024-T42	0.063	–	Replace
	2531012	• • Spar Web	1	2024-T42	0.050	–	Replace
	2531012	• • Doubler	1	2024-T42	0.063	–	Replace
2	2331006	• Spar Assy., No. 2	1	–	–	–	–
	2331006	• • Angle	1	S-568	–	–	Replace
	2331006	• • Cap, LH	1	S-588	–	–	Replace
	2331006	• • Cap, RH	1	S-588	–	–	Replace
	2331006	• • Shim	1	2024-T3 Clad	0.100	–	Replace
	2331006	• • Doubler	1	2024-T3 Clad	0.080	–	Replace
	2331006	• • Angle	1	2024-T42 Clad	0.063	–	Replace
	2331006	• • Angle (2 ea.)	1	4130 Steel [1]	0.125	–	Replace
	2331006	• • Web	1	2024-T3 Clad	0.050	–	Replace
	2331007	• • Angle	1	2024-T42 Clad	0.080	–	Replace
	2331007	• • Angle	1	2024-T42 Clad	0.080	–	Replace
	S-151-1	• • Clip	1	–	–	–	Replace
3	2331006	• Spar Assy., No. 3	1	–	–	–	–
	2331006	• • Stiffener	1	S-575	–	–	Replace
	2331006	• • Spacer	1	2024-T3 Clad	0.190	–	Replace
	2331006	• • Doubler	1	2024-T3 Clad	0.025	–	Replace
	2331006	• • Bracket (2 ea.)	1	S-591	0.125	–	Replace
	2331006	• • Web	1	2024-T3 Clad	0.050	–	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2331006	• • Cap (2 ea.)	1	S-589	–	–	Replace
	2331006	• • Web	1	2024-T4 Clad	0.040	–	Replace
4	2331007	• Spar Assy., No. 4	1	–	–	–	–
	2331007	• • Spar Cap (2 ea.)	1	S-590	–	–	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2331007	• • Plate	1	2024-T351 Clad	0.250	–	Replace
	2331007	• • Filler	1	2024-T3 Clad	0.090	–	Replace
	2331007	• • Filler, LH	1	2024-T351 Clad	0.250	–	Replace
	2331007	• • Filler, RH	1	2024-T351 Clad	0.250	–	Replace
	2331007	• • Filler	1	2024-T3 Clad	0.120	–	Replace
	2531539	• • Bracket, Downspring	1	2024-T4	1.100	–	Replace
	2331007	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2331007	• • Web	1	2024-T3 Clad	0.040	–	Replace
	2331007	• • Filler (2 ea.)	2	2024-T3 Clad	0.120	–	Replace
5	2331007	• Spar, Rear	1	2024-T42 Clad	0.063	–	Replace
	2431011	• Rib Instl.	–	–	–	–	–
6	2431012	• • Rib Cap, LH	1	S551	–	–	Replace
	2431012	• • Rib Cap, RH	1	S551	–	–	Replace
	2431012	• • Rib Web	1	2024-T3 Clad	0.050	F4-1	Replace

Vertical Stabilizer Repair Index
Figure 2 (Sheet 3 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2431012	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2431012	• • Doubler	1	2024-T42 Clad	0.032	F4-1	Replace
	2431012	• • Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2431012	• • Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2431012	• • Filler	1	2024-T3 Clad	0.080	F4-1	Replace
	2431012	• • Filler	1	2024-T3 Clad	0.080	F4-1	Replace
	2431012	• • Doubler	1	2024-T3 Clad	0.125	F4-1	Replace
	2331016	• Rib Instl.	–	–	–	–	–
7	2331016	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2331016	• • Stiffener (2 ea.)	1	S-549	–	–	Replace
	2331016	• • Rib	1	2024-T42 Clad	0.050	F4-1	Replace
	2331016	• • Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2331016	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331016	• • Rib (3 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2331016	• • Attach Angle	1	2024-T42 Clad	0.032	–	Replace
	2331015	• Rib Instl.	–	–	–	–	–
8	2331015	• • Rib (5 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331015	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331014	• Rib Instl.	–	–	–	–	–
9	2331014	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331014	• • Rib	1	2024-T42 Clad	0.050	F4-1	Replace
	2331014	• • Angle	1	2024-T42 Clad	0.050	F4-1	Replace
	2331014	• • Gusset	1	2024-T3	0.063	F4-1	Replace
	2331014	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331013	• Rib Instl.	–	–	–	–	–
10	2331013	• • Rib (5 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2331013	• • Angle (4 ea.)	1	2024-T42 Clad	0.040	–	Replace
11	2331008	• Rib Assy.	1	–	–	–	–
	2331008	• • Angle (4 ea.)	1	2024-T42 Clad	0.040	–	Replace
	2331008	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	–	Replace
12	2331033	• Rib	1	2024-T42 Clad	0.063	–	Replace
13	2331040	• Channel Assy., Antenna	1	–	–	–	–
	2331040	• • Channel	1	2024-T3 Clad	0.050	–	Replace
	2331040	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2331040	• Channel Assy., Antenna	1	–	–	–	–
	2331040	• • Channel	1	2024-T3 Clad	0.050	–	Replace
	2331040	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
14	2331030	• Hinge Assy.	1	–	–	–	–
	2331030	• • Bracket	1	2024-T42 Clad	0.071	F4-1	Replace
	2331030	• • Plate	1	2024-T3 Clad	0.100	F4-1	Replace
	2331030	• • Hinge Arm	1	2024-T4 Clad	0.250	F4-1	51-71-00
	2331030	• Filler	1	2024-T3 Clad	0.100	F4-1	Replace

Vertical Stabilizer Repair Index
Figure 2 (Sheet 4 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	2331031	• Hinge Assy.	1	–	–	–	–
	2331031	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	F4-1	Replace
	2331031	• • Hinge Arm	1	2024-T4 Clad	0.250	F4-1	51-71-00
	2331031	• Filler	1	2024-T3 Clad	0.040	F4-1	Replace
16	2331025	• Hinge, LH & RH (1 ea.)	1	–	–	–	51-71-00
	6031025	• Hinge, LH & RH (1 ea.)	3	7050-T7451	3.500	F4	51-71-00
17	2431003	• Web Assy	1	–	–	–	–
	2431003	• • Web	1	2024-T42 Clad	0.080	F4-1	Replace
18	2431003	• Plate	1	2024-T3	0.250	F4-1	Replace
	2431003	• Shim	1	2024-T3 Clad	0.050	F4-1	Replace
	2431003	• Filler	1	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Skin Doubler	1	301 Stainless	0.020	F4-1	Replace
	2431003	• Plate, LH	1	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Plate, RH	1	2024-T3 Clad	0.080	F4-1	Replace
	2431005	• Attach Angle	1	2024-T42	0.040	F4-1	Replace
	2431005	• Skin Support	1	2024-T3 Clad	0.040	F4-1	Replace
	2431003	• Angle LH	1	S-554	–	F4-1	Replace
	2431003	• Angle RH	1	S-554	–	F4-1	Replace
	2431005	• Attach Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2431000	• Shim, Laminated (Max. 0.040)	1	③	0.003	F4-1	Replace
	2531000	• Filler	1	Stafoam AA604	–	–	Replace
19	2431000	• Skin, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-02
	2388320	• Antenna Cable Support	1	②	0.040	F4-1	Replace
20	2431000	• Skin, LH	1	2024-T42 Clad	0.050	F4-1	Replace
	2431000	• Skin, RH	1	2024-T42 Clad	0.050	F4-1	Replace
21	2331023	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331023	• Doubler	1	2024-T3 Clad	0.063	F4-1	Replace
22	2331032	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331032	• Doubler	1	2024-T3 Clad	0.063	F4-1	Replace
23	2331038	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331038	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
24	2331059	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331059	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
25	2331037	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331037	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
26	2331058	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331058	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
27	2331038	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331038	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
28	2331057	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331057	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
29	2431105	• Fin Tip Instl. - See Figure 5.	–	–	–	–	–

Vertical Stabilizer Repair Index
Figure 2 (Sheet 5 of 6)

CODES	EFFECTIVITIES
1	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
2	29-003 THRU 29-004; 31-001 AND SUBSEQUENT
3	31-043 AND SUBSEQUENT

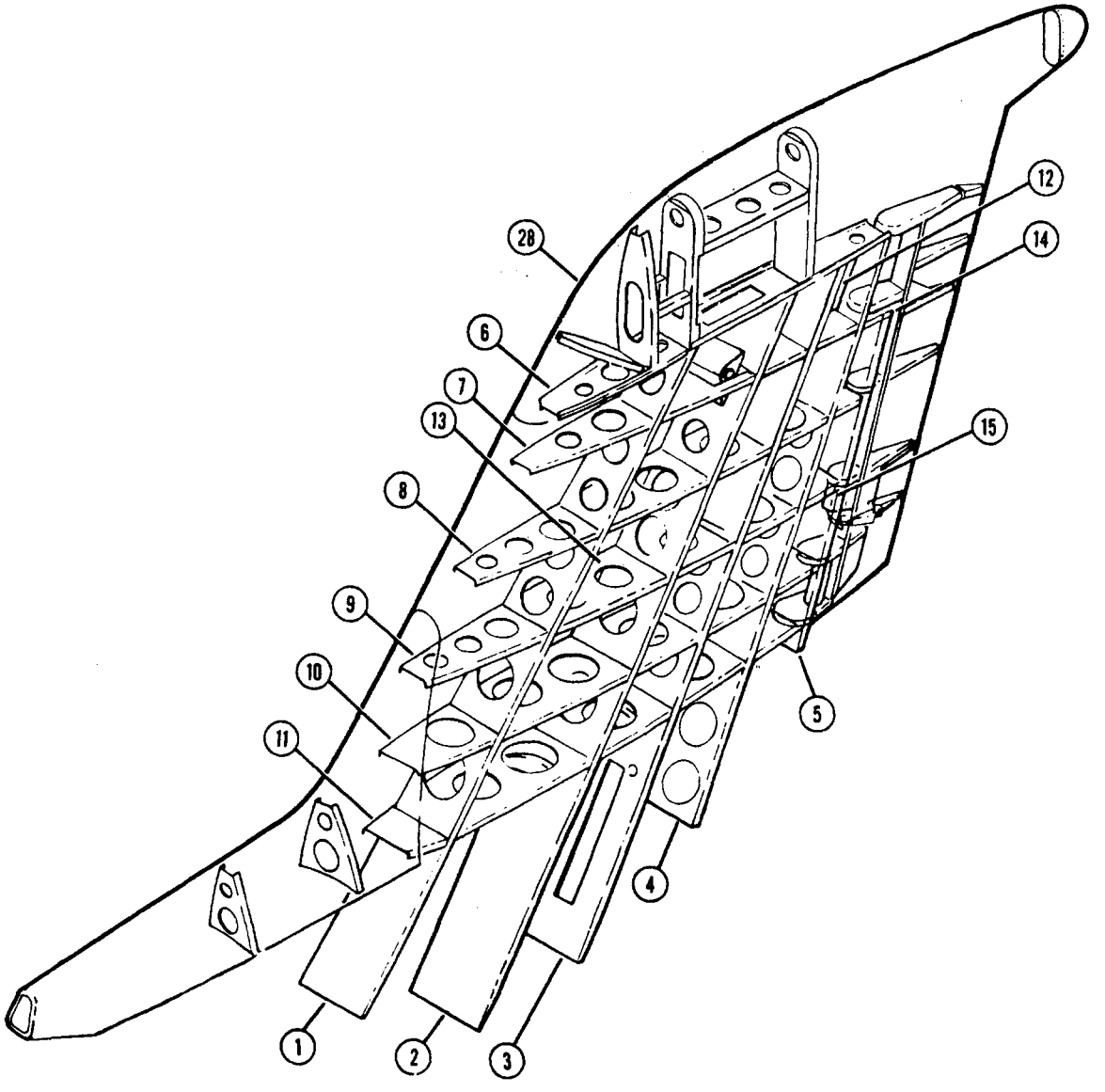
NOTES

1. Condition Normalized, heat treat to 125,000 -150,000 psi.

2. 301 Stainless 1/2 Hard.

3. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

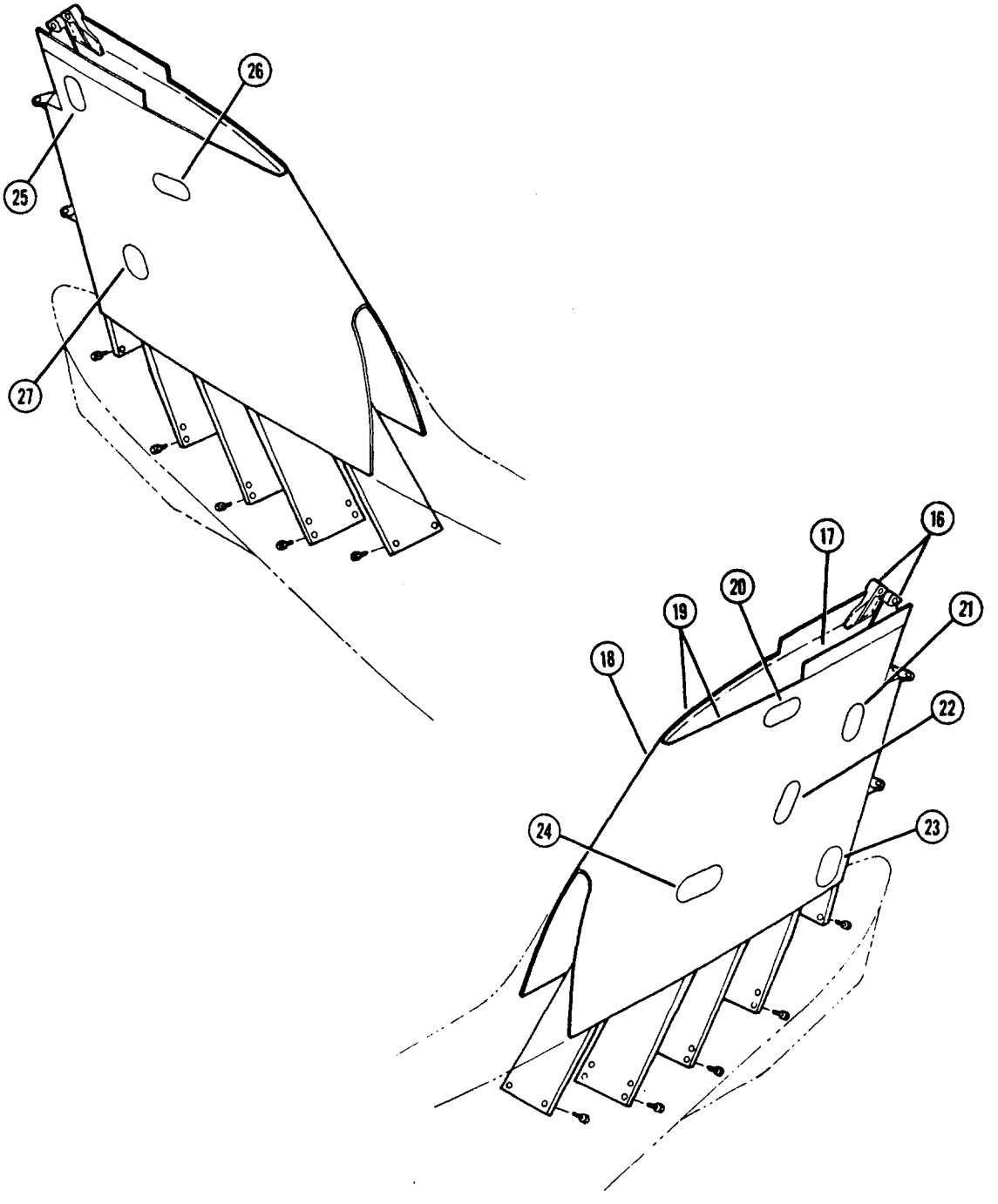
Vertical Stabilizer Repair Index
Figure 2 (Sheet 6 of 6)



5-6A
5-21B-2

Vertical Stabilizer Repair Index
Figure 3 (Sheet 1 of 6)

VERTICAL STABILIZER - STRUCTURAL IDENTIFICATION



5-14C-1

Vertical Stabilizer Repair Index
Figure 3 (Sheet 2 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2531000	Vertical Fin Assembly	1	–	–	–	–
1	2531012	• Spar Assy., No. 1	–	–	–	–	–
	2531012	• • Angle	1	2024-T42	0.063	–	Replace
	2531012	• • Spar Web	1	2024-T42	0.050	–	Replace
	2531012	• • Doubler	1	2024-T42	0.063	–	Replace
2	2331006	• Spar Assy., No. 2	–	–	–	–	–
	2331006	• • Angle	1	S-568	–	–	Replace
	2331006	• • Cap, LH	1	S-588	–	–	Replace
	2331006	• • Cap, RH	1	S-588	–	–	Replace
	2331006	• • Shim	1	2024-T3 Clad	0.100	–	Replace
	2331006	• • Doubler	1	2024-T3 Clad	0.080	–	Replace
	2331006	• • Angle	1	2024-T42 Clad	0.063	–	Replace
	2331006	• • Angle (2 ea.)	1	4130 Steel [1]	0.125	–	Replace
	2331006	• • Web	1	2024-T3 Clad	0.050	–	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	S-151-1	• • Clip	1	–	–	–	Replace
3	2331006	• Spar Assy., No. 3	–	–	–	–	–
	2331006	• • Stiffener	1	S-575	–	–	Replace
	2331006	• • Spacer	1	2024-T3 Clad	0.190	–	Replace
	2331006	• • Doubler	1	2024-T3 Clad	0.025	–	Replace
	2331006	• • Bracket (2 ea.)	1	S-591	0.125	–	Replace
	2331006	• • Web	1	2024-T3 Clad	0.050	–	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2331006	• • Cap (2 ea.)	1	S-589	–	–	Replace
	2331006	• • Web	1	2024-T4 Clad	0.040	–	Replace
4	2331007	• Spar Assy., No. 4	–	–	–	–	–
	2331007	• • Spar Cap (2 ea.)	1	S-590	–	–	Replace
	2331007	• • Angle (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2331007	• • Plate	1	2024-T351 Clad	0.250	–	Replace
	2331007	• • Filler	1	2024-T3 Clad	0.090	–	Replace
	2331007	• • Filler, LH	1	2024-T351 Clad	0.250	–	Replace
	2331007	• • Filler, RH	1	2024-T351 Clad	0.250	–	Replace
	2331007	• • Filler	1	2024-T3 Clad	0.120	–	Replace
	2531539	• • Bracket, Downspring	1	2024-T4	1.100	–	Replace
	2331007	• • Doubler	1	2024-T3 Clad	0.050	–	Replace
	2331007	• • Web	1	2024-T3 Clad	0.040	–	Replace
5	2331007	• Spar, Rear	1	2024-T42 Clad	0.063	–	Replace
	2531011	• Rib Instl.	–	–	–	–	–
6	2431012	• • Rib Cap, LH	1	S551	–	–	Replace
	2431012	• • Rib Cap, RH	1	S551	–	–	Replace
	2431012	• • Rib Web	1	2024-T3 Clad	0.050	F4-1	Replace
	2431012	• • Rib	1	2024-T42 Clad	0.032	–	Replace
	2431012	• • Doubler	1	2024-T42 Clad	0.030	–	Replace

Vertical Stabilizer Repair Index
Figure 3 (Sheet 3 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2431012	• • Angle (2 ea.)	1	2024-T42 Clad	0.063	F4-1	Replace
	2431012	• • Filler (2 ea.)	1	2024-T3 Clad	0.080	F4-1	Replace
	2431012	• • Doubler	1	2024-T3 Clad	0.125	F4-1	Replace
	2331016	• Rib Instl.	–	–	–	–	–
7	2331016	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2331016	• • Stiffener (2 ea.)	1	S-549	–	–	Replace
	2331016	• • Rib	1	2024-T42 Clad	0.050	F4-1	Replace
	2331016	• • Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2331016	• • Angle (2 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331016	• • Rib (ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331016	• • Doubler	1	2024-T3 Clad	0.040	F4-1	Replace
	2331016	• • Doubler	1	2024-T3 Clad	0.032	F4-1	Replace
	2331016	• • Attach Angle	1	2024-T42 Clad	0.032	F4-1	Replace
	2331015	• Rib Instl.	–	–	–	–	–
8	2331015	• • Rib (5 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331015	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331014	• Rib Instl.	–	–	–	–	–
9	2331014	• • Rib (2 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331014	• • Rib	1	2024-T42 Clad	0.050	F4-1	Replace
	2331014	• • Angle	1	2024-T42 Clad	0.050	F4-1	Replace
	2331014	• • Gusset	1	2024-T3	0.063	F4-1	Replace
	2331014	• • Rib (2 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331014	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331013	• Rib Instl.	–	–	–	–	–
10	2331013	• • Rib (5 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331013	• • Angle (4ea.)	1	2024-T42 Clad	0.040	–	Replace
11	2331008	• Rib Assy.	–	–	–	F4-1	–
	2331008	• • Angle (3 ea.)	1	2024-T42 Clad	0.040	F4-1	Replace
	2331008	• • Rib (4 ea.)	1	2024-T42 Clad	0.032	F4-1	Replace
	2331008	• • Angle	1	2024-T42 Clad	0.040	F4-1	Replace
12	2331033	• Rib	1	2024-T42 Clad	0.063	F4-1	Replace
13	2331040	• Channel Assy., Antenna	1	–	–	–	–
	2331040	• • Channel	1	2024-T3 Clad	0.050	F4-1	Replace
	2331040	• • Doubler	1	2024-T3 Clad	0.050	F4-1	Replace
	2331040	• Channel Assy., Antenna	–	–	–	–	–
	2331040	• • Channel	1	2024-T3 Clad	0.050	F4-1	Replace
	2331040	• • Doubler	1	2024-T3 Clad	0.050	F4-1	Replace
14	2331030	• Hinge Assy.	–	–	–	–	–
	2331030	• • Bracket	1	2024-T42 Clad	0.071	F4-1	Replace
	2331030	• • Plate	1	2024-T3 Clad	0.100	F4-1	Replace
	2331030	• • Hinge Arm	1	2024-T4 Clad	0.250	–	51-71-00
	2331030	• Filler	1	2024-T3 Clad	0.100	F4-1	Replace

Vertical Stabilizer Repair Index
Figure 3 (Sheet 4 of 6)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	2331031	• Hinge Assy.	–	–	–	–	–
	2331031	• • Bracket (2 ea.)	1	2024-T42 Clad	0.071	F4-1	Replace
	2331031	• • Hinge Arm	1	2024-T4 Clad	0.250	F4-1	51-71-00
	2331031	• Filler	1	2024-T3 Clad	0.040	F4-1	Replace
16	2331025	• Hinge, LH & RH (1 ea.)	1	–	–	–	51-71-00
	6031025	• Hinge, LH & RH (1 ea.)	2	7050-T7451	3.500	F4	51-71-00
17	2431003	• Plate	1	2024-T3 Clad	0.250	F4-1	Replace
	2431003	• Shim	1	2024-T3 Clad	0.050	F4-1	Replace
	2431003	• Filler	1	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Skin Doubler	1	301 Stainless	0.020	F4-1	Replace
	2431003	• Plate, LH	1	2024-T3 Clad	0.080	F4-1	Replace
	2431003	• Plate, RH	1	2024-T3 Clad	0.080	F4-1	Replace
	2431005	• Attach Angle	1	2024-T42	0.040	F4-1	Replace
	2431005	• Skin Support	1	2024-T3 Clad	0.040	F4-1	Replace
	2431005	• Attach Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2431000	• Shim, Laminated (Max. 0.040)	1	[3]	0.003	F4-1	Replace
	2531000	• Filler	1	Stafoam AA604	–	–	Replace
18	2431000	• Skin, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-02
	2388320	• Antenna Cable Support	1	[2]	0.040	F4-1	Replace
19	2531000	• Skin, LH	1	2024-T42 Clad	0.050	F4-1	Replace
	2531000	• Skin, RH	1	2024-T42 Clad	0.050	F4-1	Replace
20	2331023	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331023	• Doubler	1	2024-T3 Clad	0.063	F4-1	Replace
21	2331032	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331032	• Doubler	1	2024-T3 Clad	0.063	F4-1	Replace
22	2331038	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331038	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
23	2331059	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331059	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
24	2331037	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331037	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
25	2331058	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331058	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
26	2331038	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331038	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
27	2331057	• Door	1	2024-T3 Clad	0.040	F4-1	Replace
	2331057	• Doubler	1	2024-T3 Clad	0.071	F4-1	Replace
28	2431105	• Fin Tip Instl. - See Figure 4.	–	–	–	–	–

Vertical Stabilizer Repair Index
Figure 3 (Sheet 5 of 6)

CODES	EFFECTIVITIES
1	35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-671 AND SUBSEQUENT; 36-064 AND SUBSEQUENT

NOTES

1. Condition Normalized, heat treat to 125,000 -150,000 psi.

2. 301 Stainless 1/2 Hard.

3. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

Vertical Stabilizer Repair Index
Figure 3 (Sheet 6 of 6)

VERTICAL STABILIZER - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the vertical stabilizer is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

VERTICAL STABILIZER - REPAIR

1. APPROVED REPAIRS

WARNING: NO STRUCTURAL REPAIRS ARE ALLOWED TO THE SPARS IN THE VERTICAL STABILIZER.

A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the vertical stabilizer assembly fittings and attaching parts.

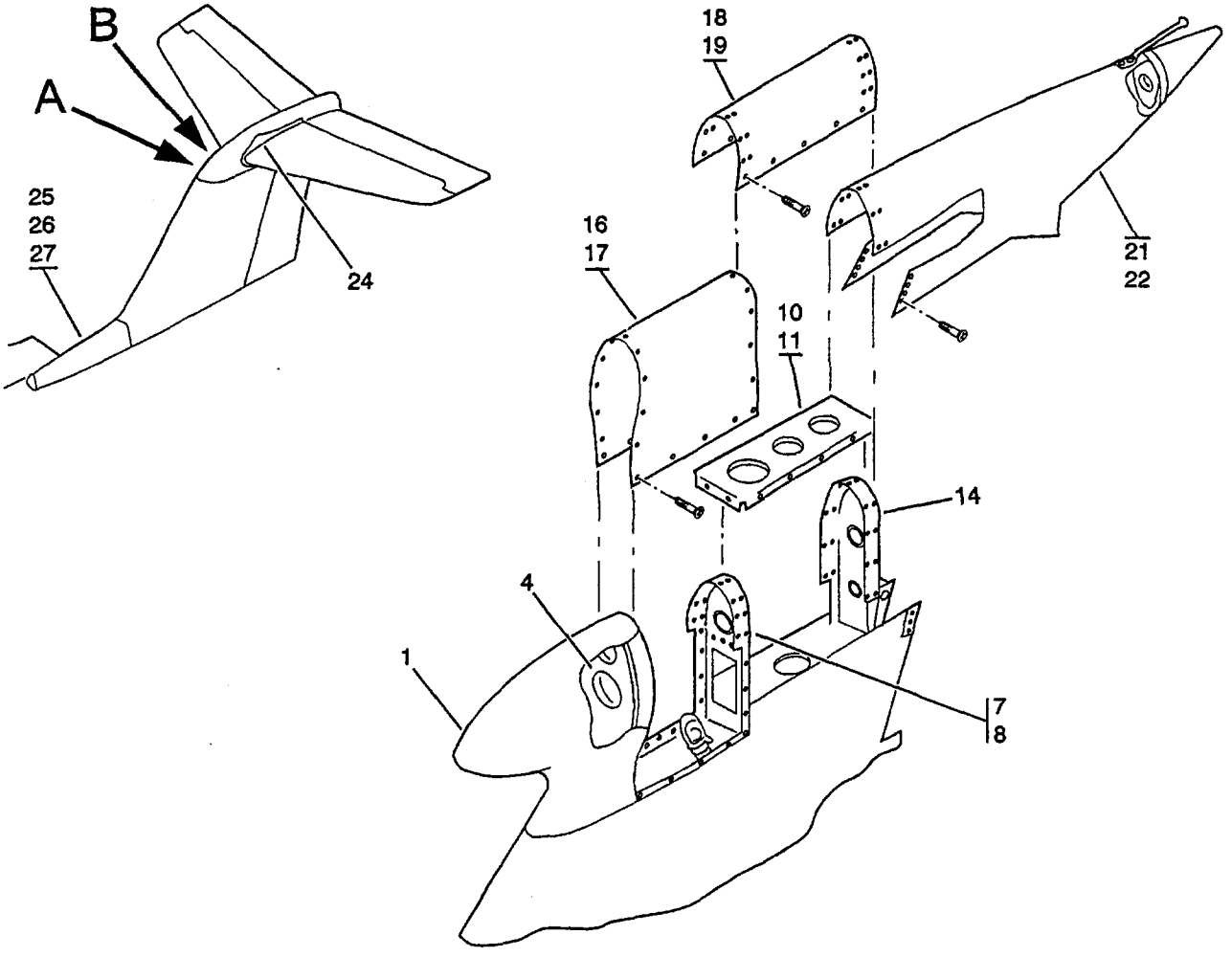
TEMPORARY REVISION NO. 55-2

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual.

FILING INSTRUCTIONS: Insert adjacent to 55-35-00, page 1, dated May 15/92 and retain until further notice.

REASON: To correct material callouts on Fin Tip Repair Index.

INSTRUCTIONS: Revise as follows:

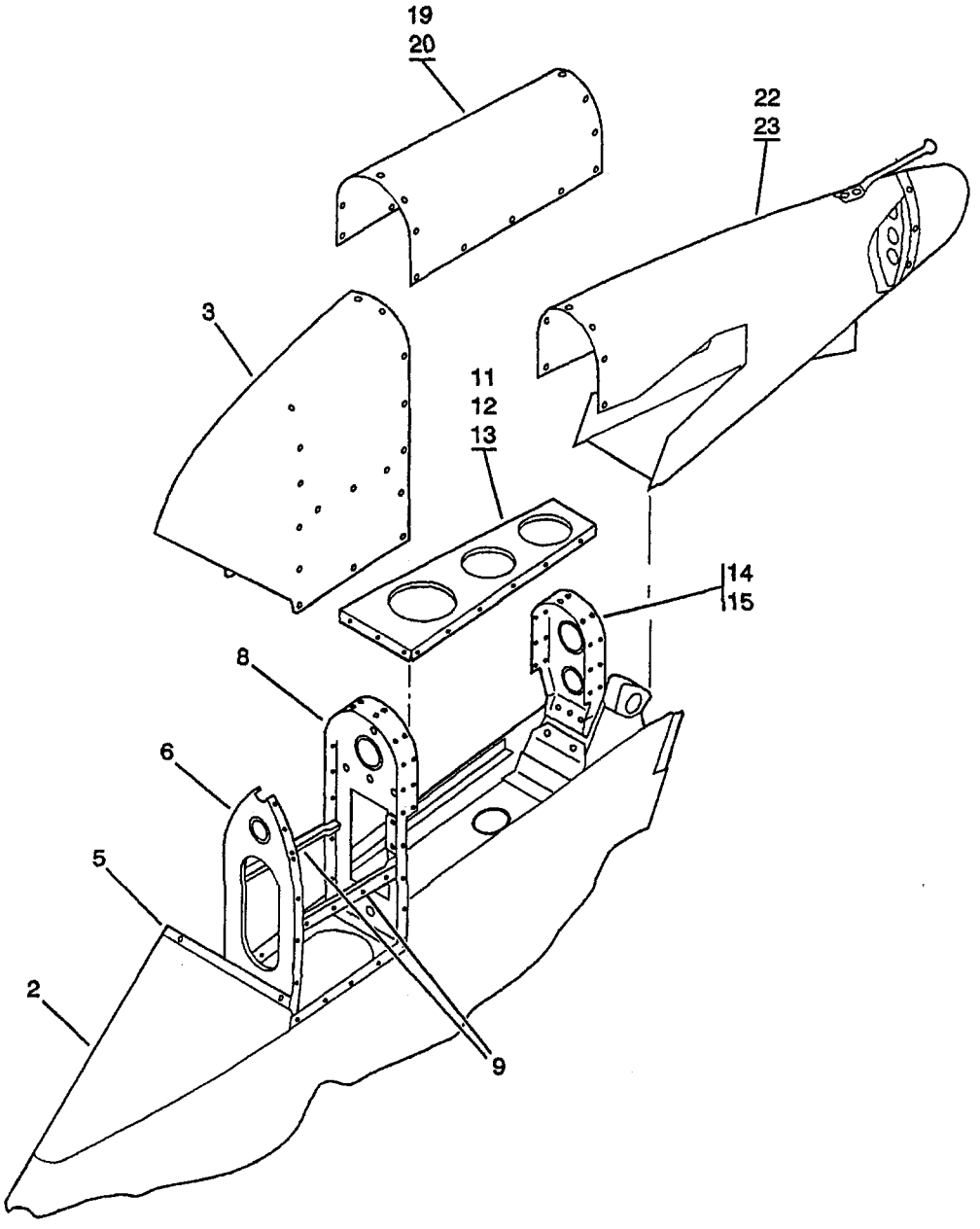


(23-003 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061)
(TYPICAL)

Detail A

S20-553500-001-01tmp

Fin Tip Repair Index
Figure 1 (Sheet 1 of 5)



(24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT)
(TYPICAL)

Detail B

Fin Tip Repair Index
Figure 1 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF CODE	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2431105	Fin Tip Instl.	1	-	-	-	-
1	23311017	• Fairing, Fin Fwd	2	6061-T4	0.032	F4-1	Replace
2	2431105	• Fairing, Fin Lower Fwd	3	2024-T4 Clad	0.040	F4-1	Replace
	2589012	• Fairing, Fin Lower Fwd	4	6061-T4	0.071	F-1 ext F-4 int	Replace
3	2431105	• Fairing, Fin Upper Fwd	3	6061-T42	0.040	F4-1	Replace
	2589012	• Fairing, Fin Upper Fwd	4	6061-T4	0.071	F-1 ext F-4 int	Replace
4	2331019	• Bulkhead Assy., Fwd Fin Fairing	5	2024-T42 Clad	0.040	F4-4	Replace
	2331056	• Bulkhead Assy., Fwd Fin Fairing	6	2024-T42	0.040	F4-1	Replace
5	2431107	• Rib, Canted	7	6061-T6	-	F4-1	Replace
6	2431106	• Rib	7	2024-T42 Clad	0.032	F4-1	Replace
7	2331020	• Bulkhead Assy., Fairing	8	2024-T42 Clad	0.050	F4-1	Replace
8	2531020	• Bulkhead Assy., Fairing	9	2024-T42 Clad	0.050	F4-1	Replace
9	2431108	• Angle, LH & RH	7	2024-T42 Clad	0.032	F4-1	Replace
10	2331021	• Rib Assy,. Fin Fairing	10	2024-T42	0.050	F4-1	Replace
11	2393005	• Rib Assy., Fin Fairing	11	-	-	-	Replace
	2389005	•• Angle	11	2024-T3	0.040	-	Replace
	2331022	•• Filler	11	2024-T3	0.040	F4-1	Replace
	2331022	•• Rib	11	2024-T42 Clad	0.040	F4-1	Replace
12	2331022	• Rib Assy., Fin Fairing	12	2024-T42 Clad	0.040	F4-1	Replace
13	2631108	• Rib Assy., Fin Fairing	13	2024-T42 Clad	0.040	F4-6	Replace
14	2331021	• Bulkhead Assy., Fin Fairing Aft	14	2024-T42	0.050	F4-1	Replace
15	2631108	• Bulkhead Assy., Fin Fairing Aft	13	2024-T42	0.050	F4-6	Replace
16	2331017	•Fairing, Fin Upper Center	16	6061-T4	0.032	F-1 ext F14-1 int	Replace
17	2431101	• Fairing, Fin Upper Center	16	2024-T42	0.071	F-1 ext F14-1 int	Replace
18	2331024	• Fairing, Fin Center	10	fiberglass	5 ply #182	-	Replace
19	2331054	• Fairing, Fin Center	17	2024-T42 Clad	0.032	F-1 ext F14-1 int	Replace
20	2631102	• Fairing, Fin Center	13	2024-T42	0.032	F4 ext F4-6 ext	Replace
21	2331018	• Fairing Assy., Fin Aft	15	-	-	-	-
	2331018	•• Bulkhead	15	fiberglass	5 ply #181	-	Replace

Fin Tip Repair Index
Figure 1 (Sheet 3 of 5)

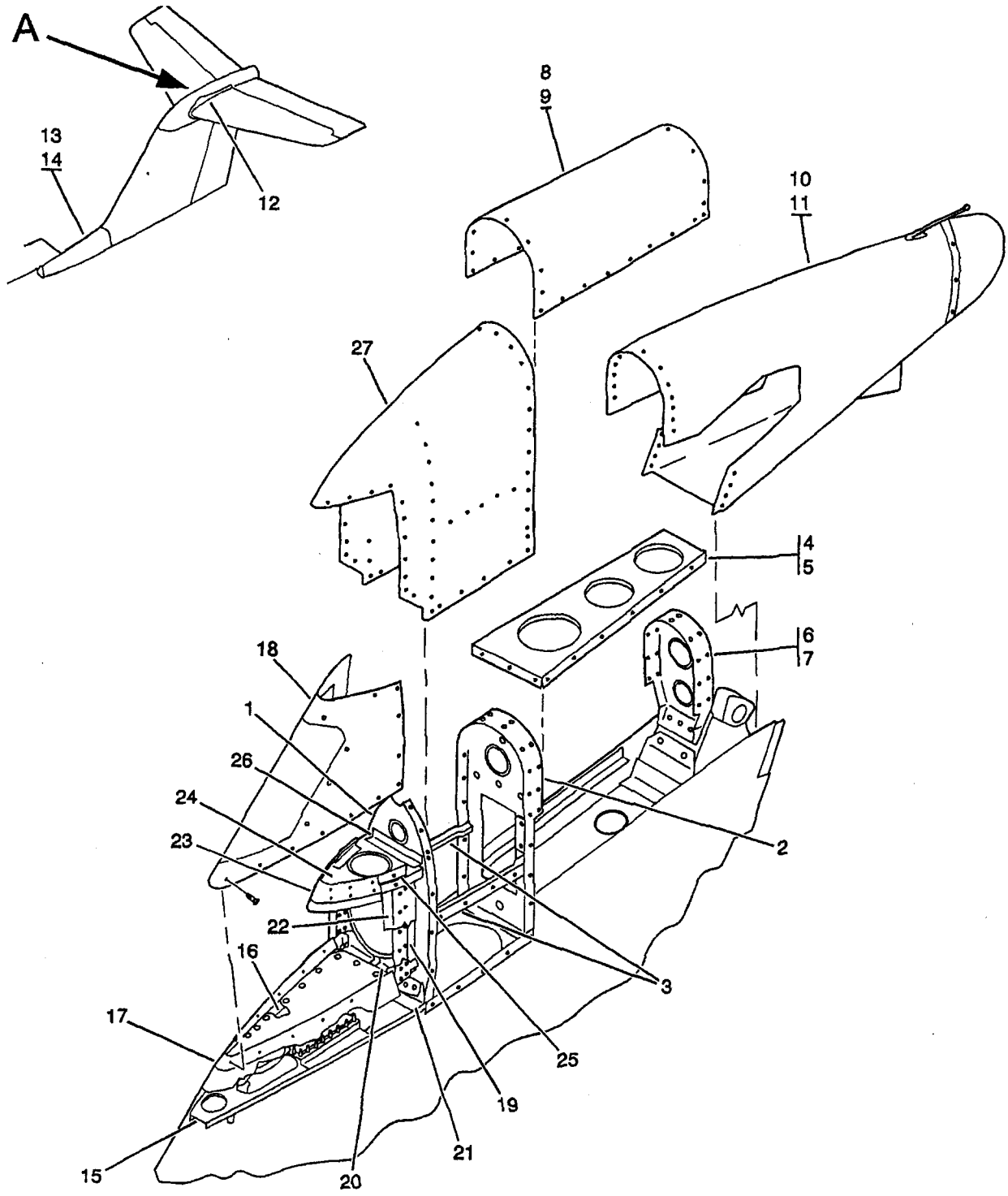
ITEM NO.	DWG. NO.	DESCRIPTION	EFF CODE	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2331018	• • Stiffeners	15	2024-T42 Clad	0.050	F4-1	Replace
	2331018	• • Rib	15	2024-T42 Clad	0.050	F4-1	Replace
	2331052	• • Bulkhead	15	2024-T42 Clad	0.050	F4-1	Replace
22	2331050	• Fairing Assy., Fin Aft	18	-	-	-	Replace
	2331052	• • Bulkhead	18	2024-T42	0.040	F4-1	Replace
	2488502	• • Bulkhead	18	2024-T42	0.040	F4-1	Replace
	2331053	• • Rib	18	2024-T42	0.040	F4-1	Replace
	2331050	• • Conduit Clip	18	2024-T3	0.032	-	Replace
23	2631100	• Fairing Assy., Fin Aft	17	-	-	-	Replace
	2631104	• • Bulkhead	17	2024-T42	0.040	F4-6	Replace
	2631103	• • Bulkhead	17	2024-T42 Clad	0.040	F4-6	Replace
	2631101	• • Skin	17	6061-T42	0.032	F4 ext F4-6 int	Replace
24	2332021	• Fairing, Bullet, Center Section	1	fiberglass	6 ply #181	-	Replace
25	2312020	• Duct Assy., Dorsal Air Intake	20	fiberglass	5 ply #181	-	Replace
26	2512020	• Duct Assy., Dorsal Air Intake	21	fiberglass	5 ply #181	-	Replace
27	2612020	• Duct Assy., Dorsal Air Intake	22	fiberglass	5 ply #181	-	Replace

EFFECTIVITY CODE	AIRCRAFT SERIAL NUMBERS
1	23-001 THRU 23-099; 24-100 THRU 24-357; 25-001 THRU 25-373; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	23-003 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
3	24-018, 24-230 THRU 25-357; 25-061, 25-067 THRU 25-373 EXCEPT U/K CERTIFIED AIRCRAFT, 35-001 THRU 35-612, 35-614, 35-618 THRU 35-643, 35-645 AND SUBSEQUENT EXCEPT U/K CERTIFIED AIRCRAFT; 36-001 AND SUBSEQUENT EXCEPT U/K CERTIFIED AIRCRAFT.
4	25-135 AND SUBSEQUENT U/K CERTIFIED AIRCRAFT; 35-613, 35-615 THRU 35-617 AND 35-644, 35-236 AND SUBSEQUENT U/K CERTIFIED AIRCRAFT;36-045 AND SUBSEQUENT U/K CERTIFIED AIRCRAFT
5	23-003 THRU 23-005
6	23-016 THRU 23-099; 24-100 THRU 24-217 AND 24-219 THRU 24-229; 25-002 THRU 25-060 AND 25-062 THRU 25-066

Fin Tip Repair Index
Figure 1 (Sheet 4 of 5)

EFFECTIVITY CODE	AIRCRAFT SERIAL NUMBERS
7	24-218, 24-230 THRU 24-357; 25-061, 25-067 AND SUBSEQUENT; 35-011 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
8	23-003 THRU 23-099; 24-100 THRU 24-344; 25-002 THRU 25-006, 25-287 THRU 25-373
9	24-345 THRU 24-357; 25-007 THRU 25-286; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
10	23-003 THRU 23-015
11	23-016 THRU 23-099; 24-100 THRU 24-289; 25-002 THRU 25-152; 35-001 AND 35-002; 36-001 AND 36-002
12	24-290 THRU 25-357; 25-153 THRU 25-373; 35-003 THRU 35-621; 36-002 THRU 36-055
13	35-622 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
14	23-003 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 THRU 35-621; 36-002 THRU 6-055
15	23-002 THRU 23-015
16	23-016 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
17	23-016 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 THRU 35-621; 36-001 THRU 36-055
18	23-016 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 THRU 35-624; 36-001 THRU 36-055
19	35-625 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
20	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-048
21	25-049 THRU 25-257; 35-492 AND SUBSEQUENT WITH DORSAL MOUNTED OXYGEN CYLINDER, 36-035 AND SUBSEQUENT WITH DORSAL MOUNTED OXYGEN CYLINDER
22	35-001 AND SUBSEQUENT WITHOUT DORSAL MOUNTED OXYGEN CYLINDER; 36-001 AND SUBSEQUENT WITHOUT DORSAL MOUNTED OXYGEN CYLINDER

Fin Tip Repair Index
Figure 1 (Sheet 5 of 5)



Detail A

Fin Tip Repair Index
Figure 2 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF CODE	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2431105	Fin Tip Instl.	-	-	-	-	-
1	2431106	• Rib	1	2024-T42 Clad	0.032	F4-1	Replace
2	2331020	• Bulkhead Assy., Fairing	1	2024-T42 Clad	0.050	F4-1	Replace
3	2431108	• Angle, LH & RH	1	2024-T42 Clad	0.032	F4-1	Replace
4	2331022	• Rib Assy., Fin Fairing	2	2024-T3 Clad	0.040	F4-1	Replace
5	2631108	• Rib Assy., Fin Fairing	3	2024-T42 Clad	0.040	F4-6	Replace
6	2331021	• Bulkhead Assy., Fin Fairing Aft	2	2024-T42 Clad	0.050	F4-1	Replace
7	2631107	• Bulkhead Assy., Fin Fairing Aft	3	2024-T42 Clad	0.050	F4-6	Replace
8	2331054	• Fairing, Fin Center	2	2024-T42 Clad	0.032	F-1 ext F14-1 int	Replace
9	2631102	• Fairing, Fin Center	3	2024-T42 Clad	0.032	F4 int F4-6 ext	Replace
10	2331050	• Fairing Assy., Fin Aft	2	-	-	-	Replace
	2331052	•• Bulkhead	2	2024-T42	0.040	F4-1	Replace
	2488502	•• Bulkhead	2	2024-T42	0.040	F4-1	Replace
	2331053	•• Rib	2	2024-T42	0.040	F4-1	Replace
	2331050	•• Conduit Clip	2	2024-T3	0.032	-	Replace
11	2631100	• Fairing Assy., Fin Aft	3	-	-	-	Replace
	2631104	•• Bulkhead	3	2024-T42	0.040	F4-6	Replace
	2631103	•• Bulkhead	3	2024-T42 Clad	0.040	F4-6	Replace
	2631101	•• Skin	3	6061-T42	0.032	F4 ext F4-6 int	Replace
12	2332021	• Fairing, Bullet, Center Section	1	fiberglass	6 ply #181	-	Replace
13	2512020	• Duct Assy., Dorsal Air Intake	4	fiberglass	5 ply #181	-	Replace
14	2612020	• Duct Assy., Dorsal Air Intake	5	fiberglass	5 ply #181	-	Replace
15	2431105	• Fairing, Fin Lower Forward	1	2024-T4 Clad	0.040	-	Replace
16	2831106	• Rib, Canted	1	2024-T42 Clad	0.040	F4-1	Replace
17	2831106	• Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
18	2831106	• Lens Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
	2831107	• Lens Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
19	2831106	• Mounting Bracket	1	2024-T42 Clad	0.040	F4-1	Replace
20	2831106	• Angle	1	2024-T42 Clad	0.040	F4-1	Replace
21	2831106	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace

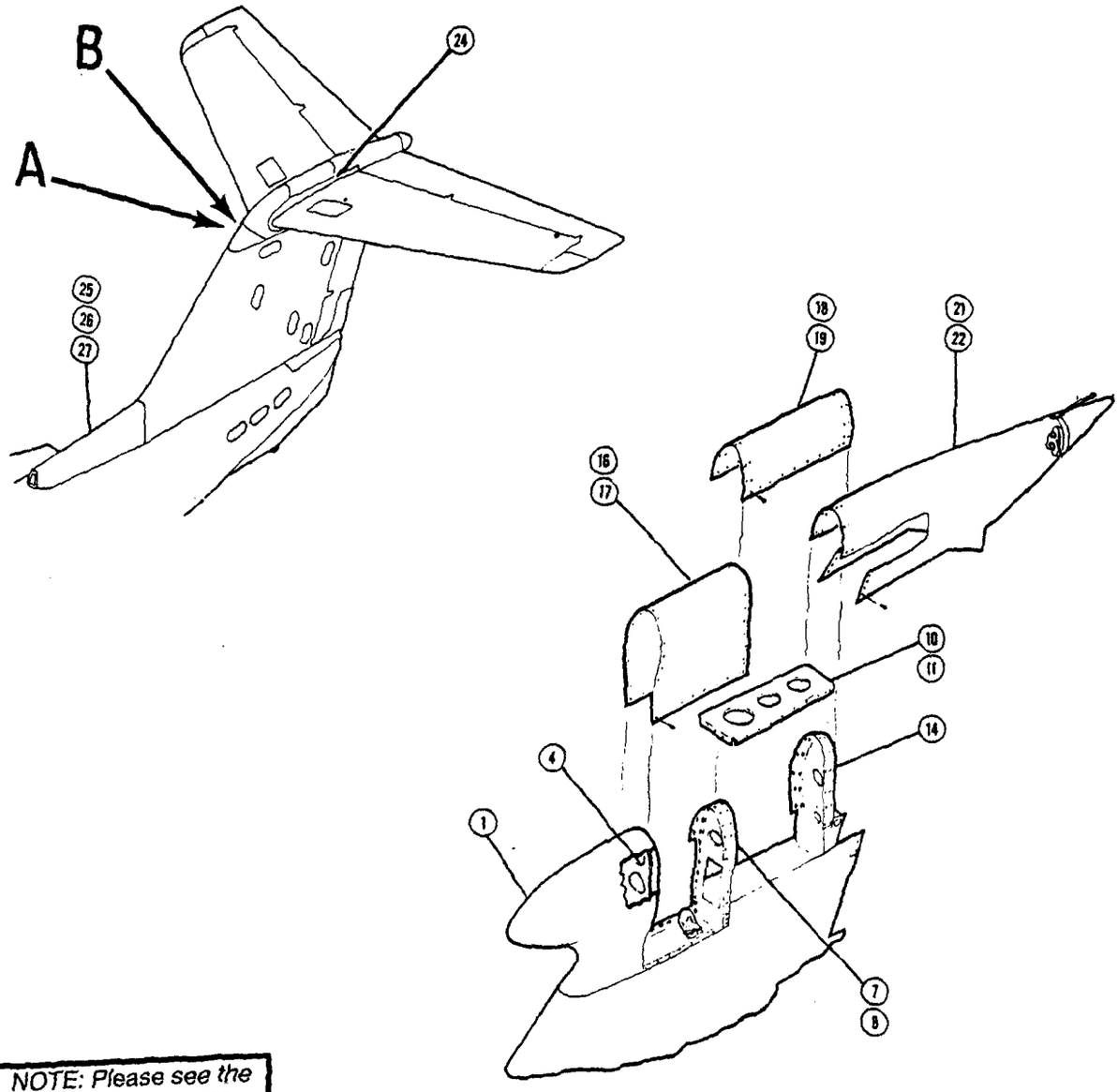
Fin Tip Repair Index
Figure 2 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF CODE	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
22	2831106	• Doubler	1	2024-T42 Clad	0.040	F4-1	Replace
23	2831106	• Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
24	2831106	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
25	2831106	• Angle	1	2024-T42 Clad	0.040	F4-1	Replace
26	2831106	• Angle	1	2024-T3 Clad	0.040	F4-1	Replace
27	2431105	• Fairing, Fin Upper Fwd	1	6061-T42	0.040	F4-1	Replace

EFFECTIVITY CODE	AIRCRAFT SERIAL NUMBERS
1	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
2	28-001 THRU 28-005; 29-001 THRU 29-004
3	31-001 AND SUBSEQUENT
4	31-001 AND SUBSEQUENT WITH DORSAL MOUNTED OXYGEN CYLINDER
5	31-001 AND SUBSEQUENT WITHOUT DORSAL MOUNTED OXYGEN CYLINDER

Fin Tip Repair Index
Figure 2 (Sheet 3 of 3)

FIN TIP - STRUCTURAL IDENTIFICATION



NOTE: Please see the TEMPORARY REVISION that revises this page.

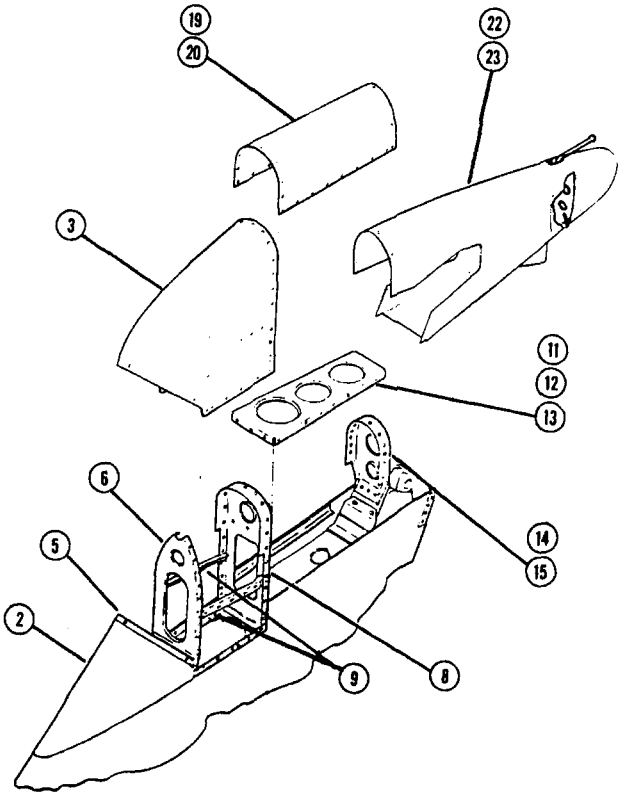
(23-003 thru 23-099; 24-100 thru 24-229 except 24-218; 25-002 thru 25-066 except 25-061)

Detail A

(TYPICAL)

Fin Tip Repair Index
Figure 1 (Sheet 1 of 5)

EFFECTIVITY: MODEL 23/24/25/35/36 SERIES AIRCRAFT



(24-218, 24-230 thru 24-357; 25-061, 25-067 thru 25-373; 35-001 and Subsequent; 36-001 and Subsequent)

Detail B

(TYPICAL)

Fin Tip Repair Index
Figure 1 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2431105	Fin Tip Instl.	1	–	–	–	–
1	2331017	• Fairing, Fin Fwd	2	2024-T42 Clad	0.032	F4-1	Replace
2	2431105	• Fairing, Fin Lower Fwd	3	2024-T4 Clad	0.040	F4-1	Replace
	2589012	• Fairing, Fin Lower Fwd	4	6061-T4	0.071	F-1 ext F14-1int	Replace
3	2431105	• Fairing, Fin Upper Fwd	3	2024-T4 Clad	0.040	F4-1	Replace
	2589012	• Fairing, Fin Upper Fwd	4	6061-T4	0.071	F-1 ext F14-1int	Replace
4	2331019	• Bulkhead Assy., Fwd Fin Fairing	5	2024-T42 Clad	0.040	F4-4	Replace
	2331056	• Bulkhead Assy., Fwd Fin Fairing	6	2024-T42	0.040	F4-1	Replace
5	2431107	• Rib, Canted	7	6061-T6	–	F4-1	Replace
6	2431106	• Rib	7	2024-T42 Clad	0.032	F4-1	Replace
7	2331020	• Bulkhead Assy., Fairing	8	2024-T42 Clad	0.050	F4-1	Replace
8	2531020	• Bulkhead Assy., Fairing	9	2024-T42 Clad	0.050	F4-1	Replace
9	2431108	• Angle LH, RH	7	2024-T42 Clad	0.032	F4-1	Replace
10	2331021	• Rib Assy., Fin Fairing	10	2024-T42 Clad	0.050	F4-1	Replace
11	2393005	• Rib Assy., Fin Fairing	11	–	–	–	Replace
	2393005	• • Angle	11	2024-T3	0.040	–	Replace
	2331022	• • Filler	11	2024-T3	0.040	F4-1	Replace
	2331022	• • Rib	11	2024-T42 Clad	0.040	F4-1	Replace
12	2331022	• Rib Assy., Fin Fairing	12	2024-T42 Clad	0.040	F4-1	Replace
13	2631108	• Rib Assy., Fin Fairing	13	2024-T42 Clad	0.040	F4-6	Replace
14	2331021	• Bulkhead Assy., Fin Fairing Aft	14	2024-T42 Clad	0.050	F4-1	Replace
15	2631108	• Bulkhead Assy., Fin Fairing Aft	13	2024-T42 Clad	0.050	F4-6	Replace
16	2331017	• Fairing, Fin Upper Center	15	6061-T4	0.032	F-1 ext F14-1int	Replace
17	2431101	• Fairing, Fin Upper Center	16	2024-T42 Clad	0.071	F-1 ext F14-1int	Replace
18	2331024	• Fairing, Fin Center	10	fiberglass	5 ply #182		Replace
19	2331054	• Fairing, Fin Center	17	2024-T42 Clad	0.032	F-1 ext F14-1int	Replace
20	2631102	• Fairing, Fin Center	13	2024-T42 Clad	0.032	F4 ext F4-6 int	Replace
21	2331018	• Fairing Assy., Fin Aft	15	–	–	–	Replace
	2331018	• • Bulkhead	15	fiberglass	5 ply #181	–	Replace
	2331018	• • Stiffeners	15	2024-T42 Clad	0.050	F4-1	Replace
	2331018	• • Rib	15	2024-T42 Clad	0.050	F4-1	Replace
	2331052	• • Bulkhead	15	2024-T42 Clad	0.040	F4-1	Replace

Fin Tip Repair Index
Figure 1 (Sheet 3 of 5)

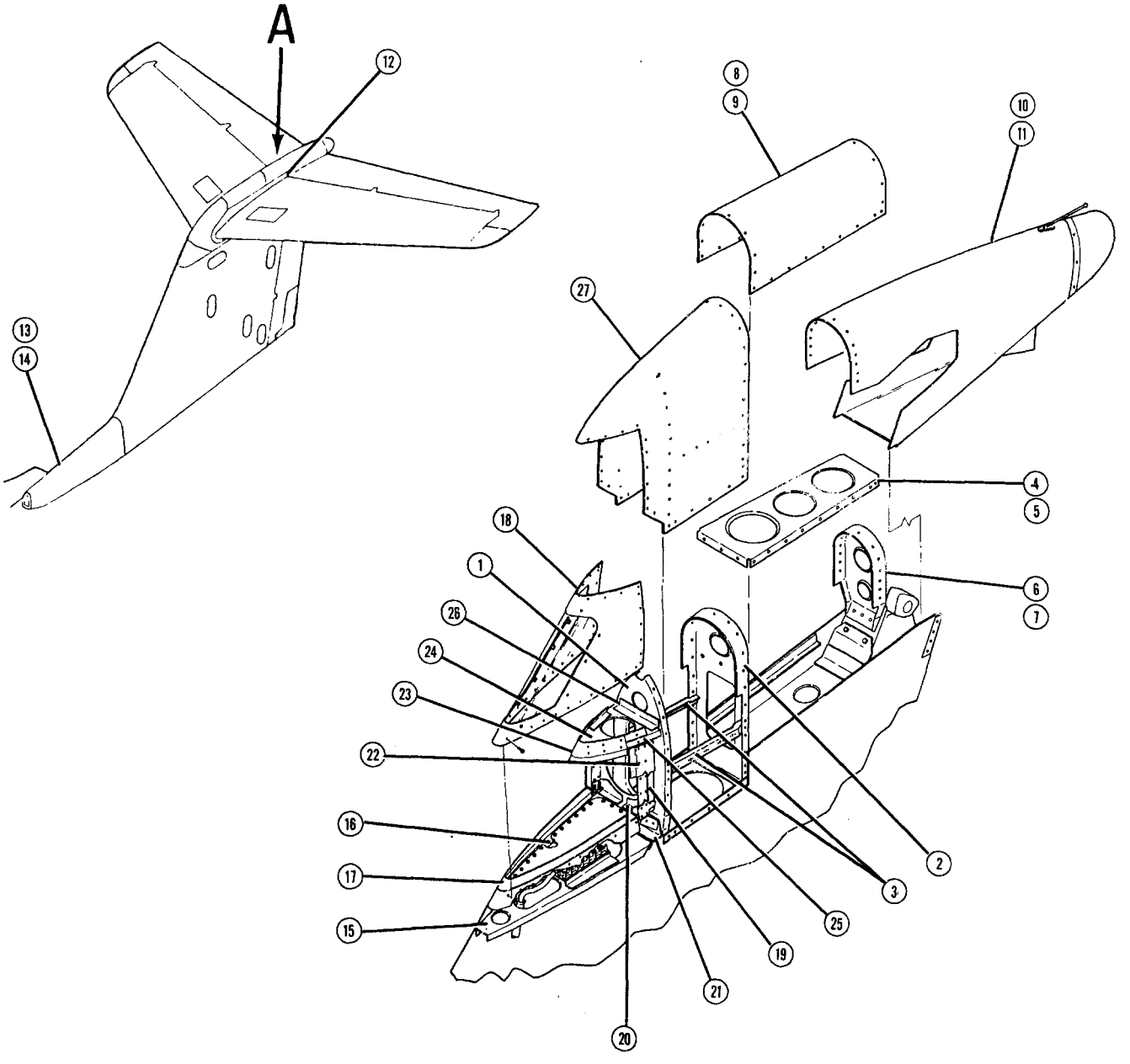
ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
22	2331050	• Fairing Assy., Fin Aft	18	–	–	–	Replace
	2331052	• • Bulkhead	18	2024-T42	0.040	F4-1	Replace
	2488502	• • Bulkhead	18	2024-T42	0.040	F4-1	Replace
	2331053	• • Rib	18	2024-T42	0.040	F4-1	Replace
	2331050	• • Conduit Clip	18	2024-T3	0.032	–	Replace
23	2631100	• Fairing Assy., Fin Aft	17	–	–	–	Replace
	2631104	• • Bulkhead	17	2024-T42	0.040	F4-6	Replace
	2631103	• • Bulkhead	17	2024-T42 Clad	0.040	F4-6	Replace
	2631101	• • Skin	17	2024-T42 Clad	0.032	F4 ext F4-6 int	Replace
24	2332021	• Fairing, Bullet, Center Section	1	2024-T42 Clad	0.032	–	Replace
25	2312020	• Duct Assy., Dorsal Air Intake	20	fiberglass	5 ply #181	–	Replace
26	2512020	• Duct Assy., Dorsal Air Intake	21	fiberglass	5 ply #181	–	Replace
27	2612020	• Duct Assy., Dorsal Air Intake	22	fiberglass	5 ply #181	–	Replace

Fin Tip Repair Index
Figure 1 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	23-001 THRU 23-099; 24-100 THRU 24-357; 25-001 THRU 25-373; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	23-003 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
3	24-018, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373 EXCEPT U/K CERTIFIED AIRCRAFT, 35-001 THRU 35-612, 35-614, 35-618 THRU 35- 643, 35-645 AND SUBSEQUENT, EXCEPT U/K CERTIFIED AIRCRAFT; 36-001 AND SUBSEQUENT EXCEPT U/K CERTIFIED AIRCRAFT
4	25-135 AND SUBSEQUENT U/K CERTIFIED AIRCRAFT; 35-613, 35-615 THRU 35-617 AND 35-644, 35-236 AND SUBSEQUENT U/K CERTIFIED AIRCRAFT; 36-045 AND SUBSEQUENT U/K CERTIFIED AIRCRAFT
5	23-003 THRU 23-015
6	23-016 THRU 23-099; 24-100 THRU 24-217 AND 24-219 THRU 24-229; 25-002 THRU 25-060 AND 25-062 THRU 25-066
7	24-218, 24-230 THRU 24-357; 25-061, 25-067 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
8	23-003 THRU 23-099; 24-100 THRU 24-344; 25-002 THRU 25-006, 25-287 THRU 25-373
9	24-345 THRU 24-357; 25-007 THRU 25-286; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
10	23-003 THRU 23-015
11	23-016 THRU 23-099; 24-100 THRU 24-289; 25-002 THRU 25-152; 35-001 THRU 35-002; 36-001 AND 36-002
12	24-290 THRU 24-357; 25-153 THRU 25-373; 35-003 THRU 35-621; 36-002 THRU 36-055
13	35-622 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
14	23-003 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 THRU 35-621; 36-002 THRU 36-055
15	23-002 THRU 23-015
16	23-016 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
17	23-016 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 THRU 35-621; 36-001 THRU 36-055
18	23-016 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-001 THRU 35-624; 36-001 THRU 36-055
19	35-625 AND SUBSEQUENT; 36-056 AND SUBSEQUENT
20	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-048
21	25-049 THRU 25-257; 35-492 AND SUBSEQUENT WITH DORSAL MOUNTED OXYGEN CYLINDER, 36-035 AND SUBSEQUENT WITH DORSAL MOUNTED OXYGEN CYLINDER
22	35-001 AND SUBSEQUENT WITHOUT DORSAL MOUNTED OXYGEN CYLINDER; 36-001 AND SUBSEQUENT WITHOUT DORSAL MOUNTED OXYGEN CYLINDER

Fin Tip Repair Index
Figure 1 (Sheet 5 of 5)

FIN TIP - STRUCTURAL IDENTIFICATION



Detail A

5-22C

Fin Tip Repair Index
Figure 2 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2431105	Fin Tip Instl.	–	–	–	–	–
1	2431106	• Rib	1	2024-T42 Clad	0.032	F4-1	Replace
2	2331020	• Bulkhead Assy., Fairing	1	2024-T42 Clad	0.050	F4-1	Replace
3	2431108	• Angle LH, RH	1	2024-T42 Clad	0.032	F4-1	Replace
4	2331022	• Rib Assy., Fin Fairing	2	2024-T42 Clad	0.040	F4-1	Replace
5	2631108	• Rib Assy., Fin Fairing	3	2024-T42 Clad	0.040	F4-6	Replace
6	2331021	• Bulkhead Assy., Fin Fairing Aft	2	2024-T42 Clad	0.050	F4-1	Replace
7	2631107	• Bulkhead Assy., Fin Fairing Aft	3	2024-T42 Clad	0.050	F4-6	Replace
8	2331054	• Fairing, Fin Center	2	2024-T42 Clad	0.032	F-1 ext F14-1int	Replace
9	2631102	• Fairing, Fin Center	3	2024-T42 Clad	0.032	–	Replace
10	2331050	• Fairing Assy., Fin Aft	2	–	–	–	Replace
	2331052	• • Bulkhead	2	2024-T42	0.040	F4-1	Replace
	2488502	• • Bulkhead	2	2024-T42	0.040	F4-1	Replace
	2331053	• • Rib	2	2024-T42	0.040	F4-1	Replace
	2331050	• • Conduit Clip	2	2024-T3	0.032	–	Replace
11	2631100	• Fairing Assy., Fin Aft	3	–	–	–	Replace
	2631104	• • Bulkhead	3	2024-T42	0.040	F4-6	Replace
	2631103	• • Bulkhead	3	2024-T42 Clad	0.040	F4-6	Replace
	2631101	• • Skin	3	2024-T42 Clad	0.032	F4 ext F4-6 int	Replace
12	2332021	• Fairing, Bullet, Center Section	1	2024-T42 Clad	0.032	–	Replace
13	2512020	• Duct Assy., Dorsal Air Intake	4	fiberglass	5 ply #181	–	Replace
14	2612020	• Duct Assy., Dorsal Air Intake	5	fiberglass	5 ply #181	–	Replace
15	2431105	• Fairing, Fin lower Fwd	1	2024-T4 Clad	0.040	–	Replace
16	2831106	• Rib, Canted	1	2024-T42 Clad	0.040	F4-1	Replace
17	2831106	• Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
18	2831106	• Lens Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
	2831107	• Lens Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
19	2831106	• Mounting Bracket	1	2024-T42 Clad	0.040	F4-1	Replace
20	2831106	• Angle	1	2024-T42 Clad	0.040	F4-1	Replace
21	2831106	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
22	2831106	• Doubler	1	2024-T42 Clad	0.040	F4-1	Replace
23	2831106	• Retainer	1	2024-T42 Clad	0.040	F4-1	Replace
24	2831106	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
25	2831106	• Angle	1	2024-T42 Clad	0.040	F4-1	Replace
26	2831106	• Angle	1	2024-T42 Clad	0.040	F4-1	Replace
27	2431105	• Fairing, Fin Upper Fwd	1	2024-T42 Clad	0.040	F4-1	Replace

Fin Tip Repair Index
Figure 2 (Sheet 2 of 3)

CODES	EFFECTIVITIES
1	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
2	28-001 THRU 28-005; 29-001 THRU 29-004
3	31-001 AND SUBSEQUENT
4	31-001 AND SUBSEQUENT WITH DORSAL MOUNTED OXYGEN CYLINDER
5	31-001 AND SUBSEQUENT WITHOUT DORSAL MOUNTED OXYGEN CYLINDER

Fin Tip Repair Index
Figure 2 (Sheet 3 of 3)

FIN TIP - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the vertical stabilizer fin tip is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

FIN TIP - REPAIR

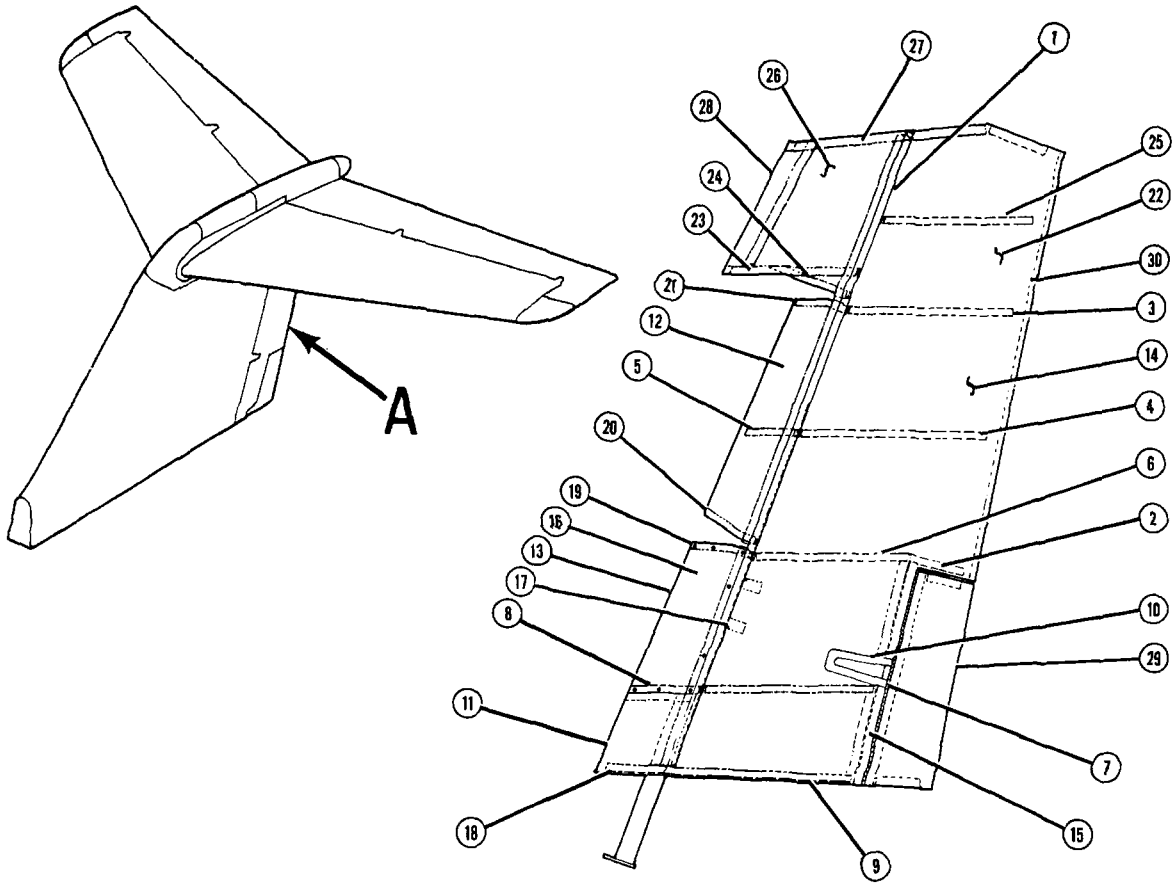
1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs for the vertical stabilizer fin tip.

RUDDER & TRIM TAB - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. The rudder is mounted on a torque tube with a bellcrank attached to its lower end. The bellcrank provides attach points for the rudder control cables. Counterbalance weights are located in the rudder leading edge. A rudder trim tab is located on the rudder lower trailing edge and is controlled by an actuator located in the rudder leading edge. Access covers on the leading edge of the rudder provide access to the hinge points, balance weights, and trim tab actuator.



(23-003 thru 23-099; 24-100 thru 24-191; 25-002 thru 25-010)

Detail A

Rudder & Trim Tab Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2333000	Rudder & Trim Tab Assembly	1	–	–	–	–
1	2333000	• Spar Assy.	1	–	–	–	–
	2333000	• • Spar	1	2024-T42 Clad	0.050	F4-1	51-70-04
2	2333007	• Rib, Stub	1	2024-T42 Clad	0.032	F4-1	51-70-03
3	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
4	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
5	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
6	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
7	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
8	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
9	2333006	• Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
10	2324011	• Fairing	1	2024-T42 Clad	0.025	–	Replace
11	2433000	• Skin, Lower Leading Edge	1	2024-T42 Clad	0.032	F1ext F14-1int	51-70-02
12	2433000	• Skin, Upper Leading Edge	1	2024-T42 Clad	0.032	F1ext F14-1int	51-70-02
13	2433000	• Door, Leading Edge	1	2024-T42 Clad	0.032	F1ext F14-1int	Replace
14	2433000	• Skin, Trailing Edge	1	2024-T3 Clad	0.040	F4-6ext F4-1int	Replace
15	2433000	• Spar, Aft	1	2024-T42 Clad	0.032	F4-4ext F4-1int	Replace
16	2433000	• Bracket, Actuator	1	2024-T3 Clad	0.063	F4-1	Replace
17	2433000	• Support, Actuator	1	2024-T42 Clad	0.050	F4-1	Replace
	2433000	• Support, Actuator	1	2024-T42 Clad	0.050	F4-1	Replace
18	2433000	• Doubler	1	2024-T3 Clad	0.040	F4-1	Replace
	2333007	• Hinge Bracket Assy.	1	–	–	–	–
19	2333007	• • Bracket	1	2024-T42 Clad	0.032	F4-1	Replace
	2333007	• Hinge Bracket Assy.	1	–	–	–	–
20	2333007	• • Bracket	1	2024-T42 Clad	0.032	F4-1	Replace
	2333007	• Hinge Bracket Assy.	1	–	–	–	–
21	2333007	• • Bracket	1	2024-T42 Clad	0.032	F4-1	Replace
	2333007	• Rudder Horn	1	–	–	–	–
22	2333007	• • Skin	1	2024-T42 Clad	0.032	F1ext F14-1int	Replace
	2333007	• • Rib Assy.	1	–	–	–	–
23	2333007	• • • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2333007	• Hinge Bracket Assy.	1	–	–	–	–
24	2333007	• • Bracket	1	2024-T42 Clad	0.032	F4-1	Replace
25	2333007	• Rib, Trailing Edge	1	2024-T42 Clad	0.032	F4-1	Replace
	2333007	• Bracket Assy.	1	–	–	–	–
26	2333007	• • Bracket	1	2024-T42 Clad	0.032	F4-1	Replace
27	2333007	• • • Rib	1	2024-T42 Clad	0.032	F4-1	Replace

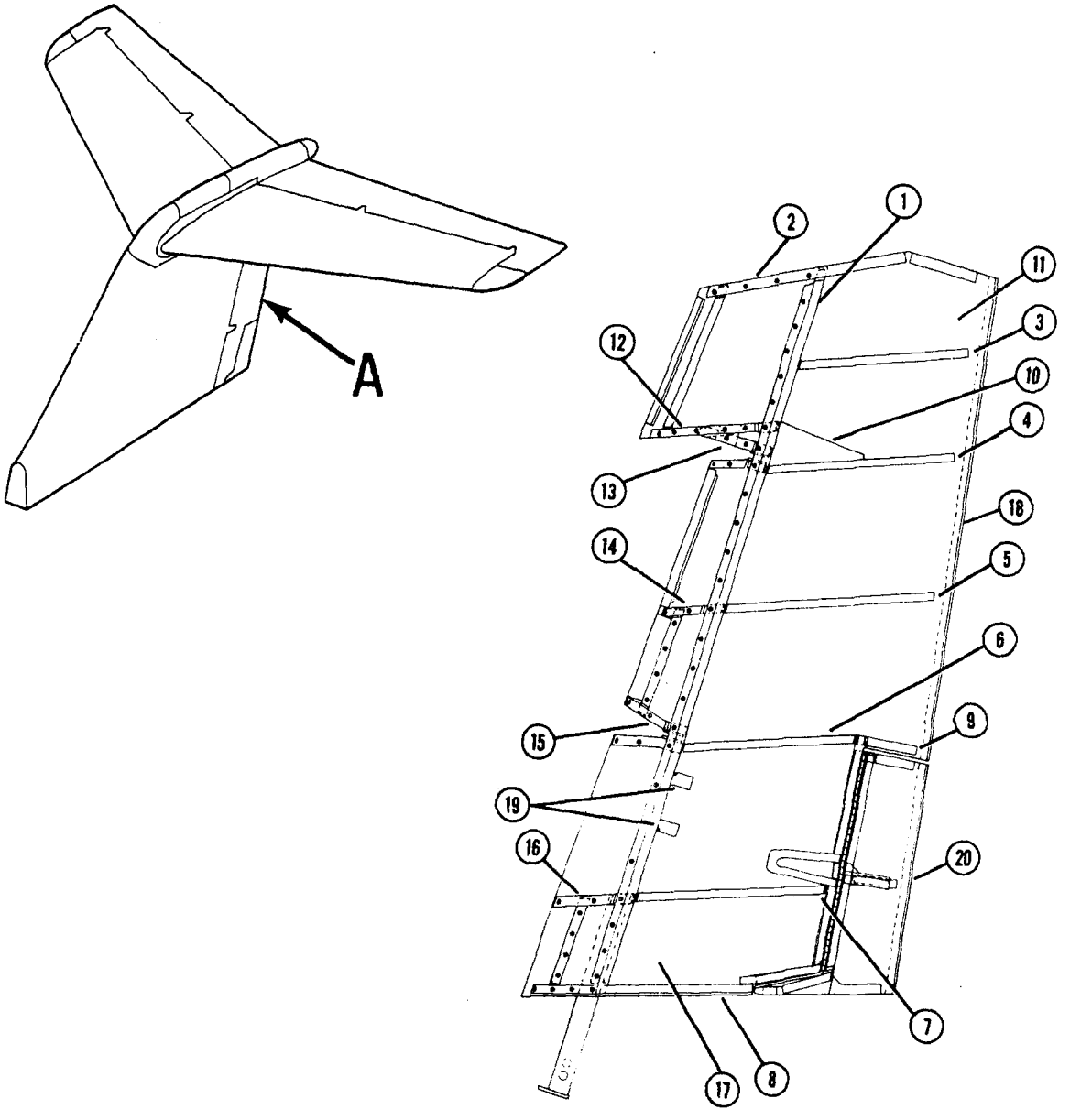
Rudder & Trim Tab Repair Index
Figure 1 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
28	2333007	• • Balance Weight	1	Grade G Lead	–	–	Replace
	2333007	• • Balance Weight	1	5% Sb Lead	–	–	Replace
29	2333005	• Tab Assy.	1	–	–	–	–
	2333005	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2333005	• • Rib	1	2024-T42 Clad	0.032	F4-1	51-70-03
	2324010	• • Tab Horn	1	–	–	F4-1	Replace
	2333005	• • Channel Spar	1	2024-T42 Clad	0.032	F4-4	Replace
	2333005	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2333005	• • Hinge	1	MS20001PX4-1816	–	–	51-70-02
	2333005	• • Filler	1	2024-T3 Clad	0.025	F4-1	Replace
	2333005	• • Skin, LH & RH	1	2024-T42 Clad	0.032	F5ext F5-1int	51-70-02
30	2333000	• Spoiler Strip (6 ea.)	2	2024-T3 Clad	0.100	F4	Replace

CODES	EFFECTIVITIES
1	23-003 THRU 23-099; 24-100 THRU 24-191; 25-002 THRU 25-010
2	25-002 THRU 25-010

Rudder & Trim Tab Repair Index
Figure 1 (Sheet 3 of 3)

RUDDER & TRIM TAB - STRUCTURAL IDENTIFICATION



(24-192 thru 24-257, 25-011 thru 25-373; 28-001 thru 28-005; 29-001 thru 29-004; 31-001 and Subsequent; 35-002 and Subsequent; 36-002 and Subsequent)

Detail A

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2633001	Rudder & Trim Tab Assembly	1	–	–	–	–
1	2633003	• Spar Assy.	1	–	–	–	–
	2433001	• • Spar	1	2024-T3 Clad	0.050	–	51-70-04
	2433001	• Tapered Shim	1	2024-T3 Clad	0.040	–	Replace
2	2333000	• Rib Assy.	1	–	–	–	–
	2633003	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2333007	• • Doubler	1	2024-T42 Clad	0.032	–	Replace
	2333007	• Bracket	1	2024-T42 Clad	0.032	–	Replace
3	2333007	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
4	2333006	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2433001	• Tapered Shim	1	2024-T42 Clad	0.032	–	Replace
5	2333006	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
6	2333006	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
7	2333006	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2433001	• Angle	1	2024-T3 Clad	0.050	–	Replace
8	2633003	• Rib Assy.	1	–	–	–	–
	2633003	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2433001	• Gusset	1	2024-T3 Clad	0.032	–	Replace
	2433001	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2433001	• Spar	1	2024-T3 Clad	0.032	–	Replace
	2633003	• Filler	1	2024-T3 Clad	0.050	–	Replace
9	2333007	• Rib	1	2024-T42 Clad	0.032	–	51-70-03
10	2433001	• Doubler, LH & RH	1	2024-T3 Clad	0.040	–	Replace
	2633002	• Leading Edge & Balance Weight Instl.	1	–	–	–	–
11	2633002	• • Skin, Upper	1	2024-T42 Clad	0.032	–	51-70-02
	2633002	• • Balance Weight	1	5% Sb Lead	–	–	Replace
	2633003	• • Gang Channel	1	(Make from NAS689-14-6)	–	–	Replace
12	2633003	• • Rib Assy.	1	–	–	–	Replace
	2633003	• • • Rib	1	2024-T42 Clad	0.032	–	51-70-03
	2633003	• • Bracket Assy.	1	–	–	–	–
	2633007	• • • Bracket	1	2024-T42 Clad	0.032	–	Replace
	2633007	• • • Plate	1	2024-T3 Clad	0.160	–	Replace
	2333007	• • • Safety Wire Bracket	1	2024-T42 Clad	0.063	–	Replace
	2633003	• • Filler	1	2024-T3 Clad	0.032	–	Replace
13	2633003	• • Hinge Bracket Assy.	1	–	–	–	–
	2333007	• • • Bracket	1	2024-T42 Clad	0.032	–	Replace
	2333007	• • • Plate	1	2024-T3 Clad	0.160	–	Replace
	2633002	• • Skin, Center	1	2024-T42 Clad	0.032	–	Replace
	2633002	• • Balance Weight	1	5% Sb Lead	–	–	Replace
	2633003	• • Gang Channel	1	(Make from NAS689-14-6)	–	–	Replace

Rudder & Trim Tab Repair Index
Figure 2 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
14	2633003	• • Rib Assy.	1	–	–	–	–
	2633003	• • • Rib	1	2024-T42 Clad	0.032	–	Replace
	2633002	• • Balance Weight	1	5% Sb Lead	–	–	Replace
	2633003	• • Bracket Assy.	1	–	–	–	–
	2633003	• • • Bracket	1	2024-T42 Clad	0.032	–	Replace
	2633003	• • Angle	1	2024-T3 Clad	0.032	–	Replace
	2633003	• • Angle	1	2024-T3 Clad	0.032	–	Replace
15	2633003	• • Hinge Bracket Assy.	1	–	–	–	–
	2633003	• • • Rib	1	2024-T42 Clad	0.032	–	Replace
	2333007	• • • Plate	1	2024-T3 Clad	0.160	–	Replace
	2633003	• • Filler	1	2024-T3 Clad	0.032	–	Replace
	2333007	• • Hinge Bracket Assy.	1	–	–	–	–
	2333007	• • • Bracket	1	2024-T42 Clad	0.032	–	Replace
	2333007	• • • Plate	1	2024-T3 Clad	0.160	–	Replace
	2333007	• • • Safety Wire Bracket	1	2024-T42 Clad	0.063	–	Replace
	2633002	• • Skin, Lower	1	2024-T42 Clad	0.032	–	51-70-02
16	2633003	• • Rib Assy.	1	–	–	–	–
	2633003	• • • Rib	1	6061-T6	0.032	–	Replace
	2633003	• • Angle	1	2024-T3 Clad	0.032	–	Replace
	2633003	• • Bracket Assy.	1	–	–	–	–
	2633003	• • • Bracket	1	2024-T42 Clad	0.032	–	Replace
	2633003	• • Angle	1	2024-T3 Clad	0.032	–	Replace
	2633003	• • Filler	1	2024-T3 Clad	0.040	–	Replace
	2633002	• • Balance Weight	1	5% Sb Lead		–	Replace
17	2433000	• Skin, LH & RH	1	2024-T3 Clad	0.040	–	51-70-02
18	2433000	• Trailing Edge Extrusion	1	S-717	–	–	Replace
19	2433001	• Angle, LH & RH	1	S-520	–	–	Replace
	2433001	• Actuator Support, Upper & Lower	1	2024-T42 Clad	0.050	–	Replace
	2433001	• Clip	1	2024-T42 Clad	0.063	–	Replace
	2324011	• Fairing	1	2024-T42 Clad	0.025	–	Replace
20	2333009	• Tab Assy.	1	–	–	–	–
	2333009	• • Rib	1	2024-T42 Clad	0.032	–	Replace
	2333009	• • Tab Horn	1	S-634	–	–	Replace
	2333009	• • Rib	1	2024-T42 Clad	0.032	–	Replace
	2333009	• • Spar	1	2024-T42 Clad	0.032	–	Replace
	2333009	• • Balance Weight Assy.	1	Grade B Lead	–	–	Replace
	2333009	• • Skin, LH & RH	1	2024-T42 Clad	0.032	–	51-70-02
	2333009	• • Trailing Edge Extrusion	1	S-657	–	–	51-70-02
	2333009	• • Hinge	1	MS20001-4	–	–	51-70-02
	2333009	• • Rib	1	2024-T42 Clad	0.032	–	51-70-03

CODES **EFFECTIVITIES**

1 24-192 THRU 24-257; 25-011 THRU 25-373, 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT

Rudder & Trim Tab Repair Index
Figure 2 (Sheet 3 of 3)

RUDDER & TRIM TAB - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the rudder or trim tab is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

TEMPORARY REVISION NO. 55-1

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to 55-40-00, page 201, dated May 15/92 and retain until further notice.

REASON: Add procedures to replace rudder trim tab hinge pin, line ream rudder trim tab hinge, and replace rudder trim tab hinge.

INSTRUCTIONS: Add paragraphs B. Rudder Trim Tab Hinge Pin Replacement, C. Line Ream Rudder Trim Tab Hinge, and D. Rudder Trim Tab Hinge Replacement, to 55-40-00 page 201, as follows:

RUDDER & TRIM TAB - REPAIR

1. **Repairs**

WARNING: A CONTROL SURFACE BALANCE CHECK MUST BE PERFORMED FOLLOWING REPAIRS OF THE RUDDER OR THE RUDDER TRIM TAB. (REFER TO SECTION II OF THE BASIC LEARJET SERVICE MANUAL FOR MODEL 23, 24 AND 25 SERIES AIRCRAFT. REFER TO CHAPTER 27 OF THE BASIC LEARJET MAINTENANCE MANUAL FOR MODEL 28, 29, 31 35 AND 36 SERIES AIRCRAFT.)

A. Refer to Chapter 51 typical repairs, and for allowable wear and repair data for the rudder system fittings, pulleys, attaching parts and rudder components.

B. Replacement of Rudder Trim Tab Hinge Pin (See Figure 201.)

(1) Remove cotter pins from rudder trim tab hinge halves.

CAUTION: USE EXTREME CARE NOT TO DAMAGE RUDDER SKIN WHEN REMOVING AND INSTALLING RUDDER TRIM TAB HINGE PIN.

(2) Carefully remove hinge pin from hinge.

(3) Separate hinge halves.

(4) Using larger replacement hinge pin (P/N 2333009-035), attempt to slide hinge pin through all tangs of both hinge halves.

NOTE:
- If hinge pin will slide freely through all tangs of both hinge halves, proceed to step (5).
- If hinge pin will not slide freely through all tangs of both hinge halves, proceed to paragraph C.

(5) Position hinge halves together and insert hinge pin.

(6) Install cotter pins at top and bottom of hinge to retain hinge pin.

(7) Measure rudder trim tab free play. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.) If free play limits can not be obtained, replace hinge. (Refer to Replacement of Rudder Trim Tab Hinge, this section.)

C. Line Ream Rudder Trim Tab Hinge

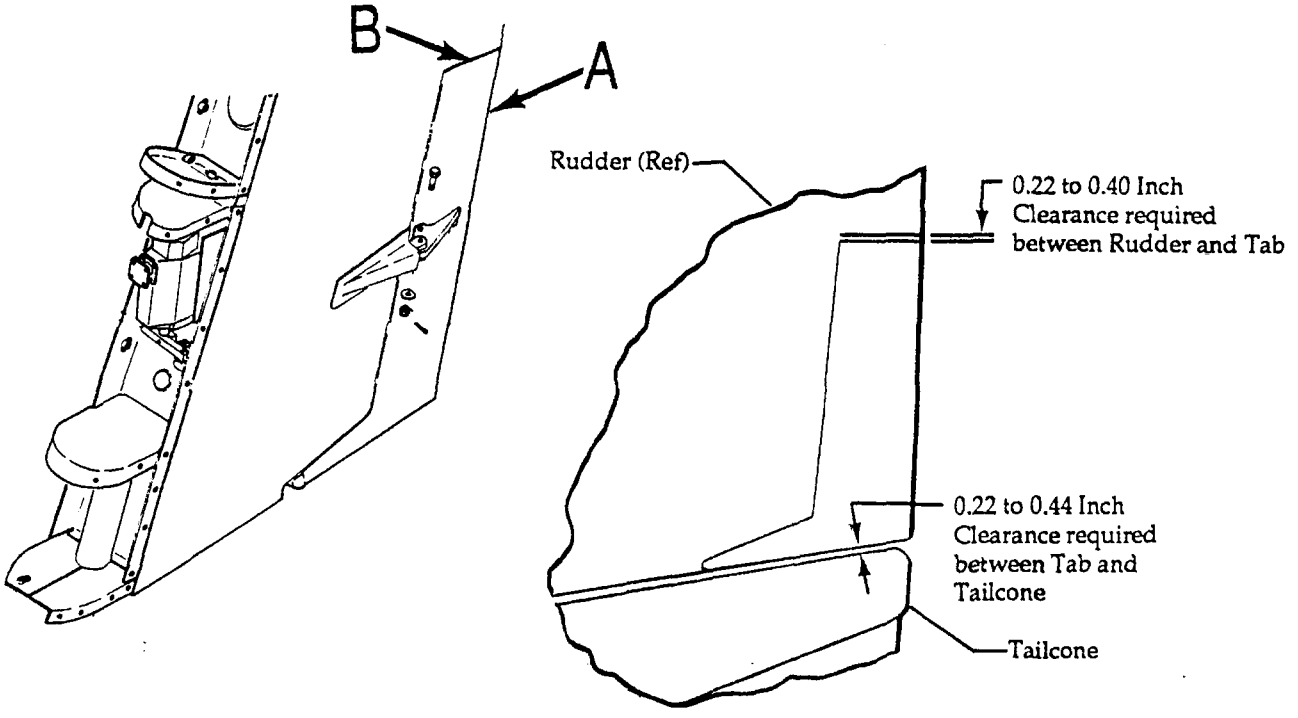
CAUTION: USE EXTREME CARE NOT TO SCRATCH, DENT, OR DAMAGE RUDDER TRIM TAB WHEN POSITIONING IN VISE OR WHILE REAMING HINGE HALF.

(1) Place rudder trim tab in vise to ream hinge half.

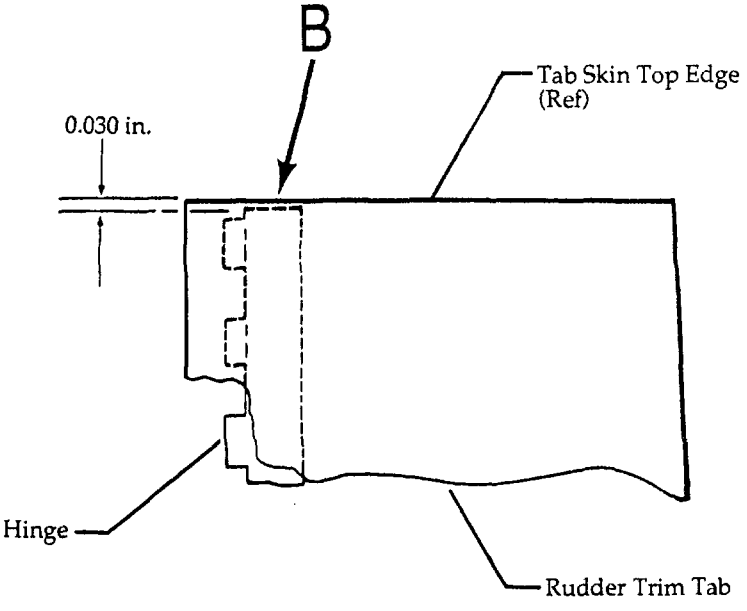
CAUTION: MAINTAIN A SLOW DRILL MOTOR SPEED AND SUPPORT DRILL SHAFT TO AVOID HARMONIC VIBRATION.

(2) Using a 4-inch, then a 6-inch and finally a 20-inch No. 40 (0.098 dia.) drill, slowly ream out holes in tangs of both hinge halves.
(3) Position hinge halves together and carefully insert a 2333009-035 hinge pin.
(4) Install cotter pins at top and bottom of hinge to retain hinge pin.
(5) Measure rudder trim tab free play. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.) If free play limits can not be obtained, replace hinge. (Refer to Replacement of Rudder Trim Tab Hinge, this section.)

D. Replacement of Rudder Trim Tab Hinge (See Figure 201.)
(1) Remove rudder from aircraft. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.)
(2) Disconnect trim tab actuator push-pull tube and bonding jumper from tab and trim tab actuator.
(3) Remove hinge halves from rudder and trim tab by drilling out rivets using a No. 30 (0.128 dia.) drill.
(4) Position new hinge assembly (P/N 2333009-033) between the spar flange and trim tab skin with square cut hinge end 0.030 inch below the upper skin edge and with centerline of hinge 0.11 inch forward of leading edge of trim tab.
(5) Mark rivet locations on upper and lower ends of hinge half.
(6) Remove hinge assembly and drill a No. 30 (0.128 dia.) hole at each marked location.
(7) Position hinge assembly to trim tab and cleco in place. Using trim tab skin rivet holes as a pattern, drill a No. 30 (0.128 dia.) hole in hinge half at each skin hole location, except where the bonding jumper attaches. Drill a No. 19 (0.166 dia.) hole at jumper attach point.
(8) Secure hinge assembly to trim tab with rivets (P/N MS20426AD4-6).
(9) Position trim tab on rudder with hinge assembly between rudder skin and spar flange. Adjust trim tab for proper clearances between rudder tab and rudder as shown. (See Figure 201.)
(10) Place a straightedge on rudder trailing edge and adjust rudder trim tab until both the rudder and rudder trim tab trailing edges are aligned.
(11) With trim tab properly positioned, mark rivet locations at upper and lower ends of hinge assembly. Remove trim tab from rudder and drill a No. 30 (0.128 dia.) hole at each location.
(12) Position trim tab to rudder and cleco in place. Using remaining holes in rudder as a pattern, drill a No. 30 (0.128 dia.) hole at each location except the second from the bottom. Drill a No. 19 (0.166 inch dia.) hole at this location for bonding jumper attachment.
(13) Secure trim tab to rudder with rivets (P/N MS20426AD4) and connect bonding jumper to trim tab.
(a) Check electrical resistance between trim tab and aircraft structure. Resistance shall not be greater than the value specified in Chapter 20 of the applicable Learjet Wiring Manual.
(14) Install push-pull tube.
(15) Check rudder balance and install rudder on aircraft. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.)

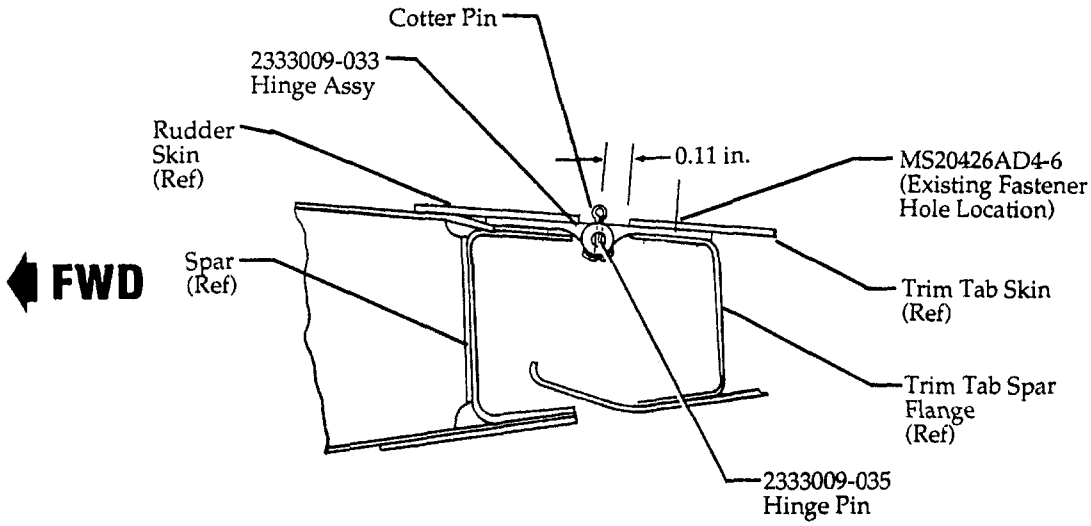


(TRIM TAB CLEARANCES)



Detail A

Rudder Trim Tab Hinge Replacement
Figure 201 (Sheet 1 of 2)



(VIEW LOOKING DOWN ON TRIM TAB)

Detail B

Rudder Trim Tab Hinge Replacement
Figure 201 (Sheet 2 of 2)

RUDDER & TRIM TAB - REPAIR

1. APPROVED REPAIRS

WARNING: **A CONTROL SURFACE BALANCE CHECK MUST BE PERFORMED FOLLOWING REPAIRS OF THE RUDDER OR THE RUDDER TRIM TAB. (REFER TO SECTION II OF THE BASIC LEARJET SERVICE MANUAL FOR MODEL 23, 24 AND 25 SERIES AIRCRAFT. REFER TO CHAPTER 27 OF THE BASIC LEARJET MAINTENANCE MANUAL FOR MODEL 28, 29, 31, 35 AND 36 SERIES AIRCRAFT.)**

A. Refer to Chapter 51 for typical repairs.

CHAPTER

56

WINDOWS

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STRUCTURAL REPAIR MANUAL

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* 56-List of Eff. Pgs.	1	Jun 1/95
56-Contents	1	May 15/92
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Insert Latest Revised Pages; Destroy Superseded or Deleted Pages.
* Asterisk indicates pages revised, deleted, or added by current revision.
The portion of the text affected by the current revision is indicated by a vertical line in the outer margin of the page.

WINDSHIELD - STRUCTURAL IDENTIFICATION

1. DESCRIPTION
   A. The flight compartment windows consist of the pilot's and copilot's windshield halves.
   B. On *Model 23 Series Aircraft* each windshield half is made up of separate, removable, inner and outer panes.
   C. On *Model 24/25/28/29 Series Aircraft* each windshield half is made up of three laminated layers of acrylic plastic. Both outer layers are made of stretched acrylic and the middle layer is cast in place acrylic.
   D. On *Aircraft 31-001 thru 31-029, 35-001 thru 35-670 and 36-001 thru 36-063 equipped with a standard, non-heated Swedlow™ windshield*, the windshield is made up of three laminated layers of acrylic plastic. Both outer layers are made of stretched acrylic 0.460 (+0.046/-0.030) inch (12 mm [+1.2 mm/-0.76 mm]) thick. The middle layer is cast in place acrylic 0.060 inch (1.5 mm) thick. Overall thickness is 1.04 (+0.09/-0.00) inches (26.4 mm [+2.3 mm/-0.0 mm]). The windshield is secured to the fuselage structure with screws, washers, nuts and retainers.
   E. On *Aircraft 31-030 and Subsequent, 35-671 and Subsequent, and 36-064 and Subsequent and prior aircraft equipped with an electrically heated Sierracin™ windshield*, the windshield is made up of four laminated layers. Two layers of polycarbonate (0.25 inch [6 mm] each) are sandwiched between an outer faceply (0.12 inch [3 mm] acrylic) and an inner crewshield (0.12 inch [3 mm] acrylic). A spacer is bonded to the interior side of the windshield. Overall thickness, including spacer and fillers, is 0.950 inch (24 mm). A stopcrack is cut on either side of the windshield through the outer acrylic layer. The stop-crack is filled with RTV sealant. The windshield has an integral electric heater and heat sensors. The electric heating element consists of a thin layer of gold laminated into the windshield. Because of the gold layer, the windshield has a yellow or gold color tint. The function of the heater is to provide windshield defogging. Terminal blocks are embedded in the windshield and provide the means for wiring the electric heater to the aircraft wiring. The windshield is secured to the fuselage structure with screws, Hi-Lok™ pins, washers, nuts and retainers.
   F. The cabin windows consist of two panes of stretched acrylic with dead air space between them. The cabin windows are secured to the fuselage structure. The right rear window is removable and serves as the emergency exit.
   G. Refer to Chapter 53 for information pertaining to the windshield structure.
   H. For additional information pertaining to the windshield refer to the basic Learjet Maintenance Manual.

WINDSHIELD - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS (WINDSHIELD)

NOTE All dimensions are in inches unless otherwise specified.

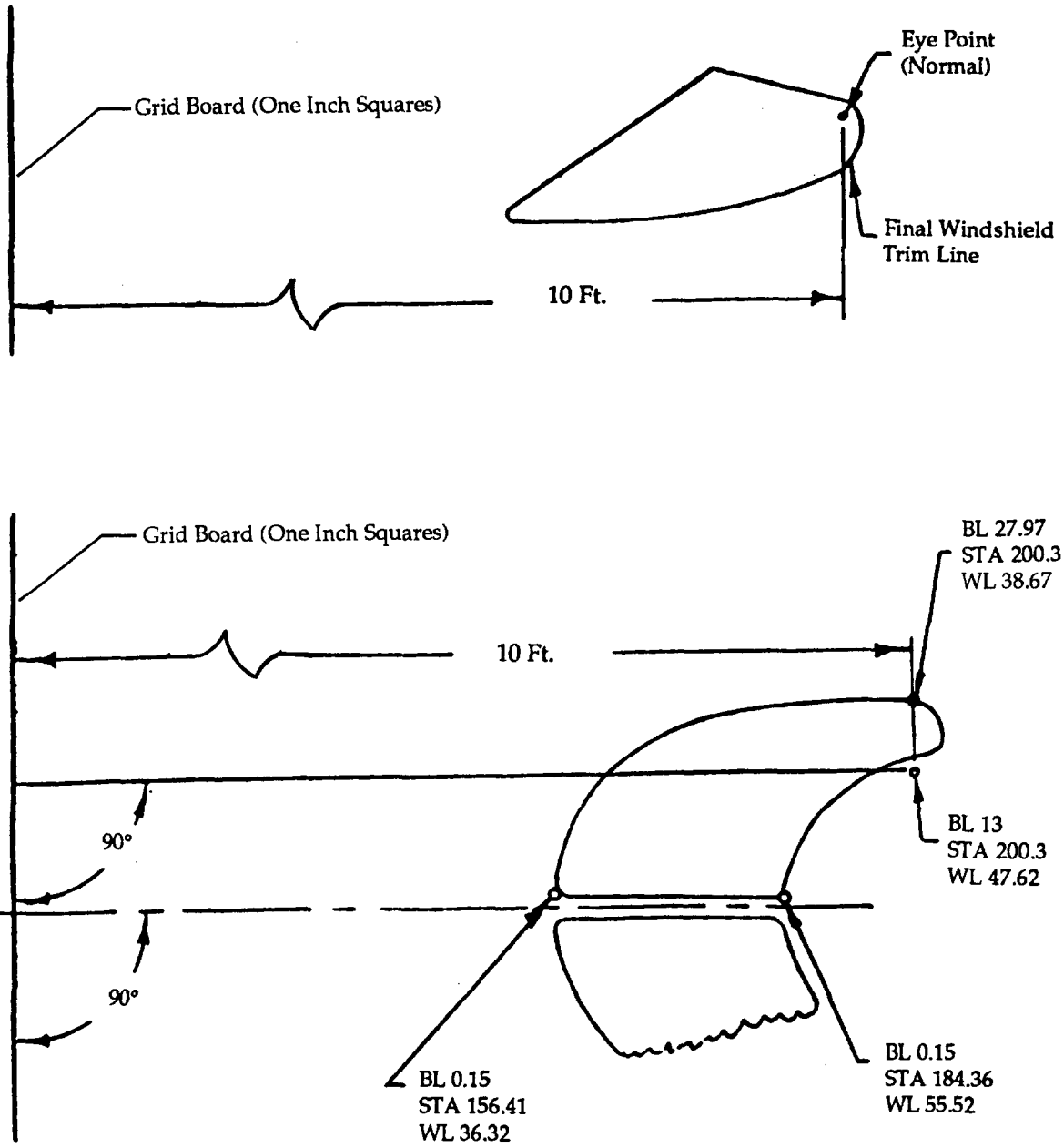
A. *Aircraft equipped with Swedlow windshield* (See Figure 101.)

NOTE:
- The windshield is divided into two zones for classification of crack and flaw criticality. Zone 1 represents the critical impact zone and requires special consideration in regard to criticality.
- In some instances repairs may be allowable with respect to the structural integrity of the windshield, but not allowable with respect to the optical distortion incurred during the repair process. Optical distortion of the windshield caused by the repair is considered the responsibility of the owner, operator, and/or maintenance facility performing the repair. See Figure 101, Detail A, for optical areas of the windshield.

(1) Windshields with any of the following discrepancies are considered unserviceable and shall be removed from service.
  (a) Any crack or flaw in the inner or outer structural layer. This includes both cracks parallel with the laminate or transverse cracks perpendicular to the laminate. However, this **does not** include:
    1) Minor surface blemishes which can be removed. (Refer to Chapter 56 of the appropriate basic Learjet Maintenance Manual.)
    2) Minor chipping about a fastener hole that can be repaired with the following limitations:
      a) Chipped out material depth shall not exceed 0.188 inch.
      b) Repairs on inside and outside surfaces of the same hole are not allowed.
      c) Repairs on any surface of more than 3 adjacent holes are not allowed.
      d) Repairs on more than 20 percent of the total fastener holes is not allowed.
  (b) Cracks in the center layer or delamination between the center layer and the inner or outer structural layers that extend:
    1) From the windshield edge to any fastener hole or to the fastener hole line.
    2) From any fastener hole to the windshield edge or extending into the windshield viewing area past the edge of the outer windshield retainer.
    3) From any fastener hole to an adjacent fastener hole.
  (c) Windshield with the following number of total cracks.
    1) Zone 1 - No more than 4 holes with center laminate flaws allowed.
    2) Zone 2 - No more than 25 holes with center laminate flaws allowed.

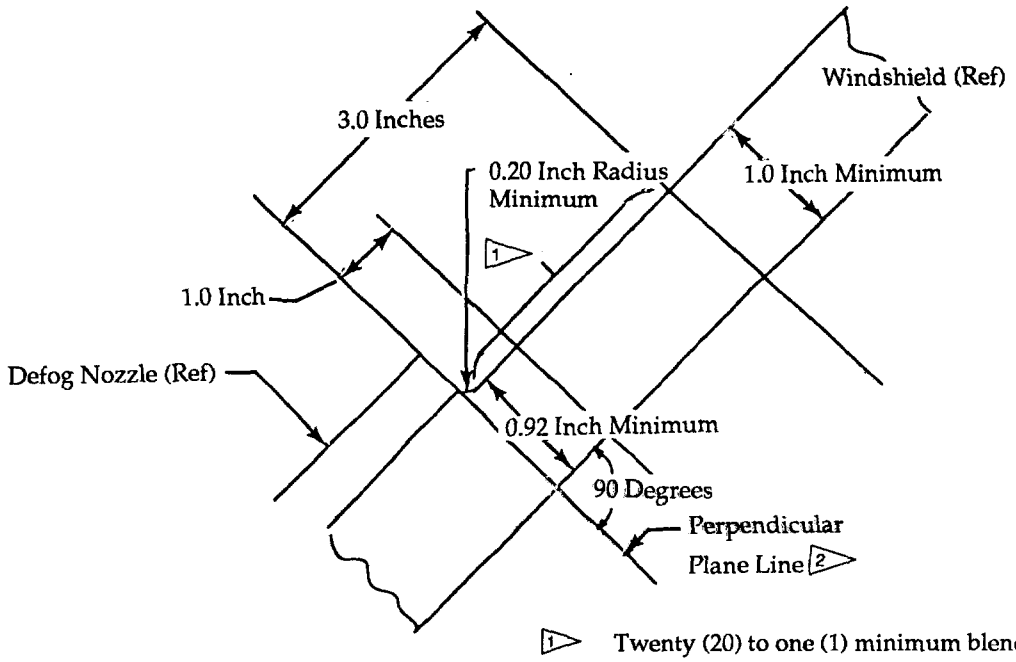
(2) Scratches, nicks, crazing or pits requiring material removal to blend that reduces the windshield thickness to less than 1.00 inch are not permitted outside the following areas:
  (a) Exterior surface of the windshield, within one inch above the defog nozzle, not to exceed the width of the nozzle.
    1) Material removal within the one-inch area above the defog nozzle may reduce the minimum windshield thickness to 0.92 inch provided:
      a) The steepness of the step created by material removal shall be held to a minimum and under no circumstances extend beyond perpendicular to the surface of the windshield (i.e., penetrated under the defog nozzle).
      b) The radius at the windshield surface, to the step at the base of the step, shall be as large as possible. A radius of less than 0.20 inch is not permitted.
      c) The material removed must be transitioned to the center of the windshield with a minimum blend ratio of 20 to 1. This transition, to the one inch minimum windshield thickness, must be completed at a distance not greater than 3 inches from the edge of the defog nozzle.
  (b) The interior surface of the windshield, adjacent to and extending aft from the aft edge of the glareshield.
    1) Minimum windshield thickness of 0.94 inch shall be maintained.
    2) A minimum blend ratio of 20 to 1 shall be maintained in all directions.
(3) Any windshield having allowable flaws or having been repaired in accordance with the above procedures, except per paragraph (1)(a) 1), shall be inspected at 1,200-hour intervals using the optical prism technique described in the Learjet NDI manual, windshield inspection (6,000 Landing/ 12 yr inspection requirement). A diagram of the discrepant locations shall be maintained to allow a means to compare progressions of these areas if it occurs. Progression of the flaws beyond the above limitations will require the windshield(s) to be removed from service.

B. *Aircraft equipped with electrically heated Sierracin windshield*
(1) Scratches or pits which reduce the outer faceply or the inner crewshield by 0.045 inch or more are not permitted. In such cases, the windshield shall be replaced.



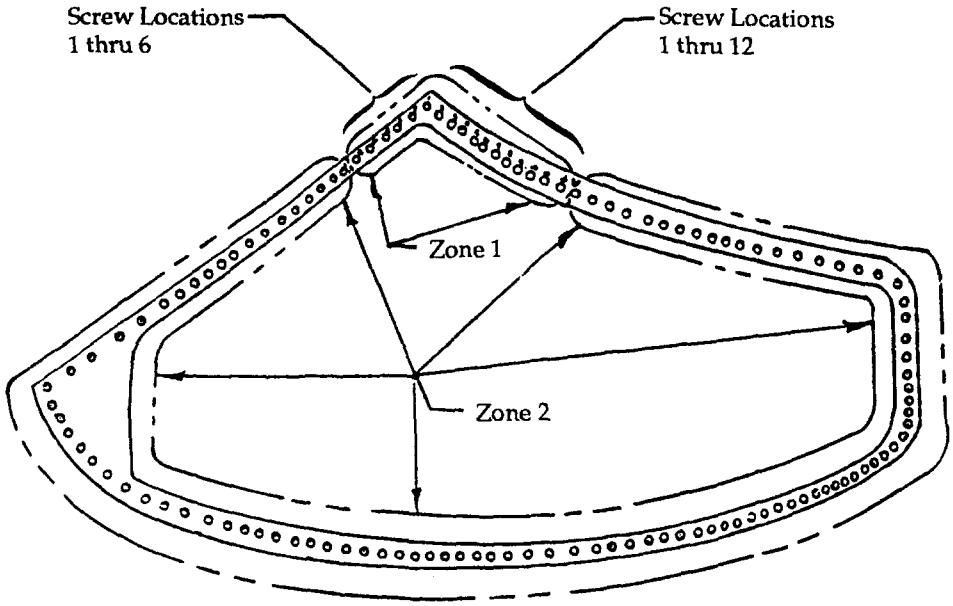
Windshield Optical Areas
Figure 101 (Sheet 1 of 3)

WINDSHIELD - ALLOWABLE DAMAGE



1 Twenty (20) to one (1) minimum blend.

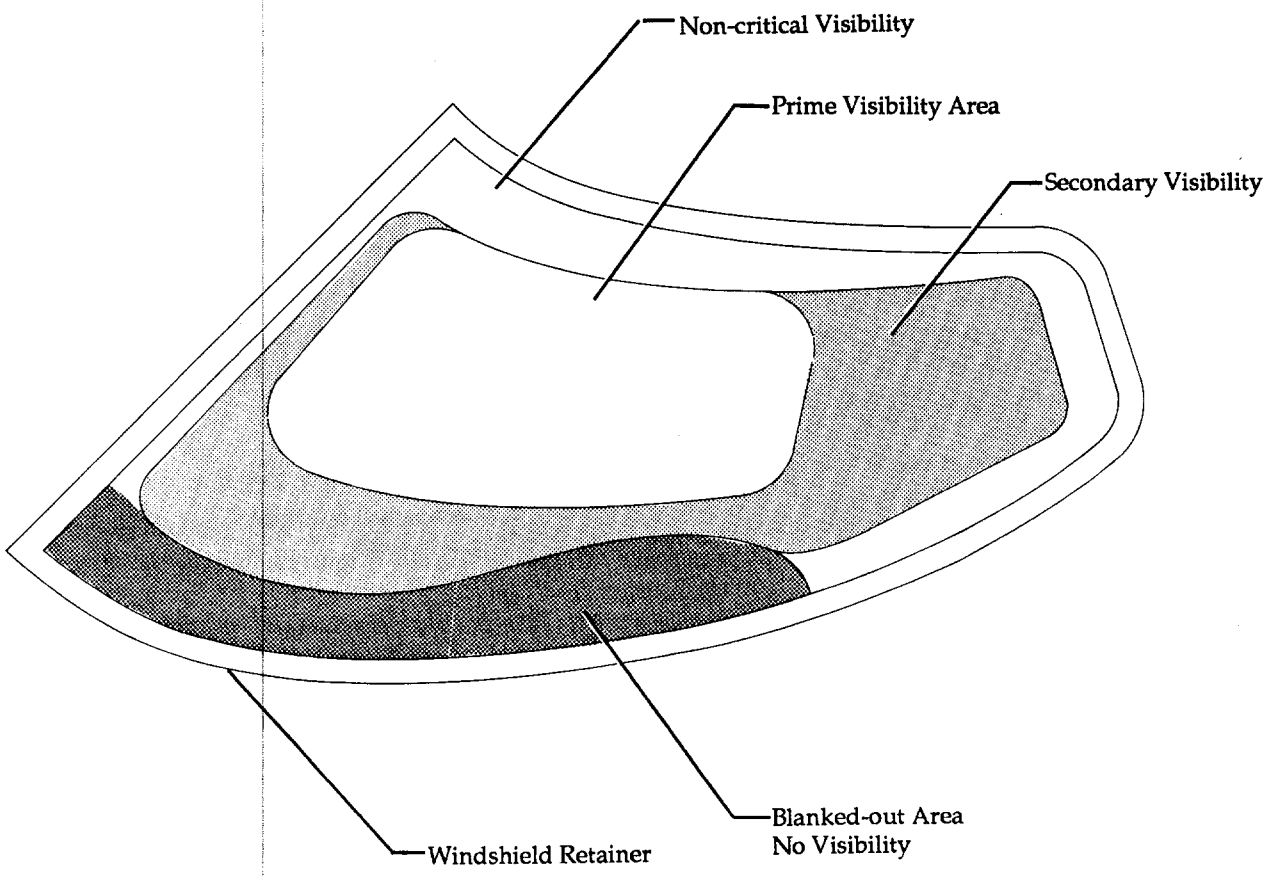
2 Removed material must not extend under perpendicular plane line.



Zone 1 - No more than 4 holes with interlayer flaws allowed.
Zone 2 - No more than 25 holes with interlayer flaws allowed.

Windshield Optical Areas
Figure 101 (Sheet 2 of 3)

WINDSHIELD - ALLOWABLE DAMAGE



(Optical Critical Areas)

Detail A

Windshield Optical Areas
Figure 101 (Sheet 3 of 3)

2. ALLOWABLE DAMAGE LIMITS (WINDSHIELD STRUCTURE)

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the windshield structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

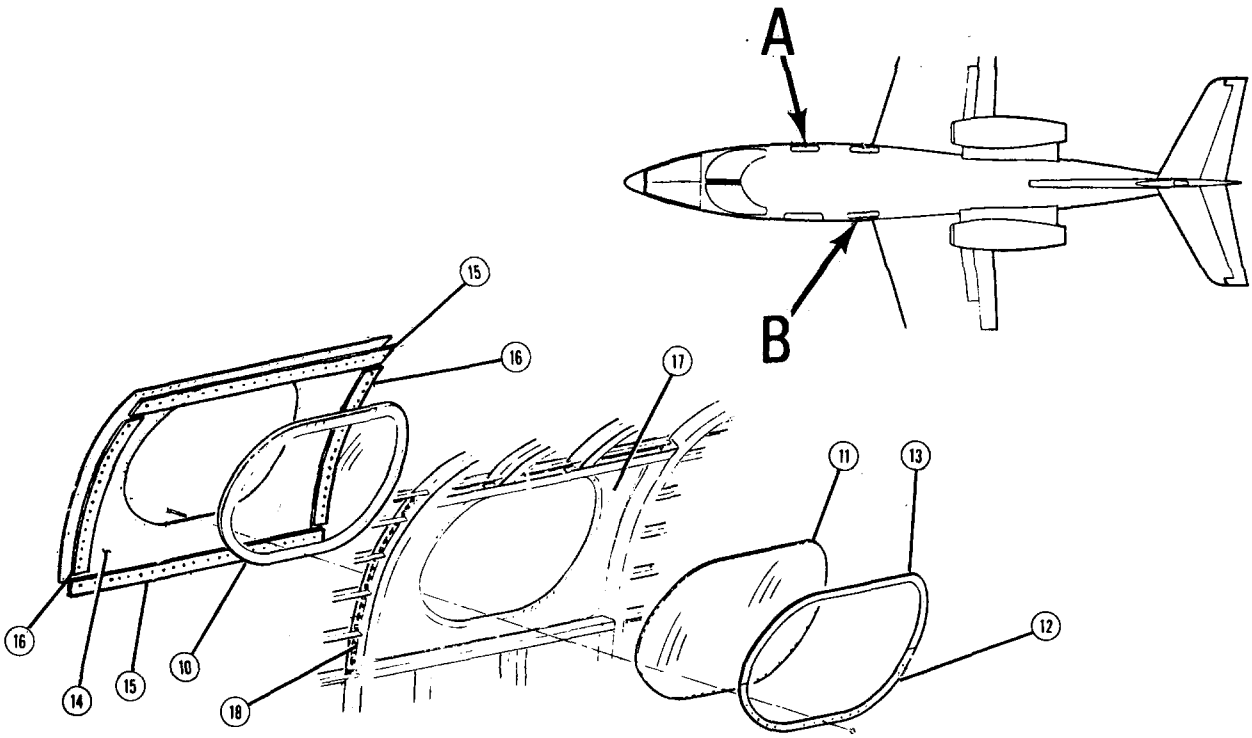
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 102

CABIN WINDOW - STRUCTURAL IDENTIFICATION

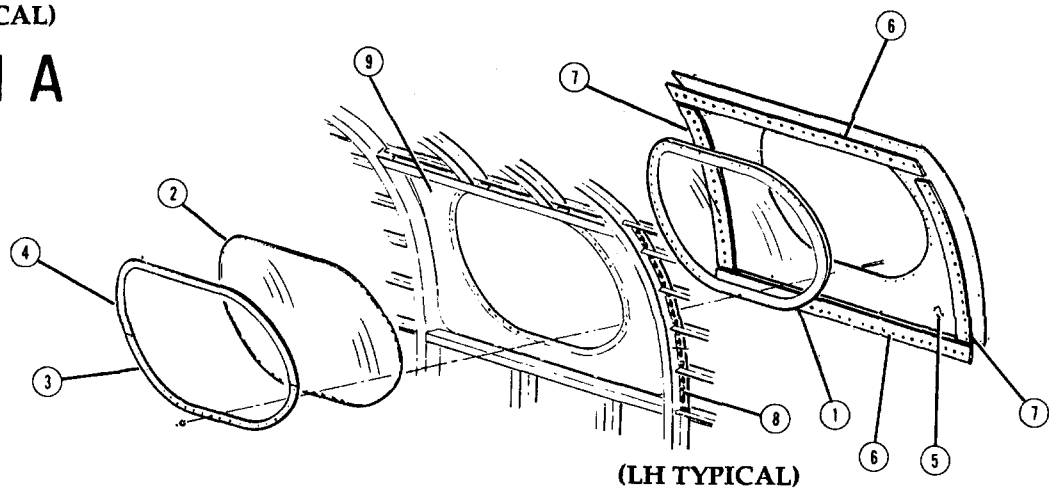
1. DESCRIPTION
   A. The cabin windows are made up of two panes of acrylic with a dead air space between them. The two panes are held apart and sealed air tight by a spacer. The outer pane is stretched acrylic 0.414 inch (10.51 mm) thick. The inner pane is stretched acrylic 0.252-inch (6.40 mm) thick. The air space between the outer and inner panes is 0.090 inch (2.28 mm). Overall thickness is 0.756 inch (19.20 mm).

CABIN WINDOW - STRUCTURAL IDENTIFICATION



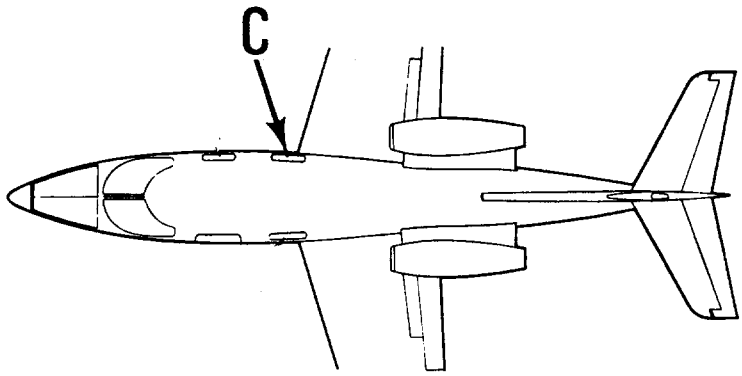
(RH TYPICAL)

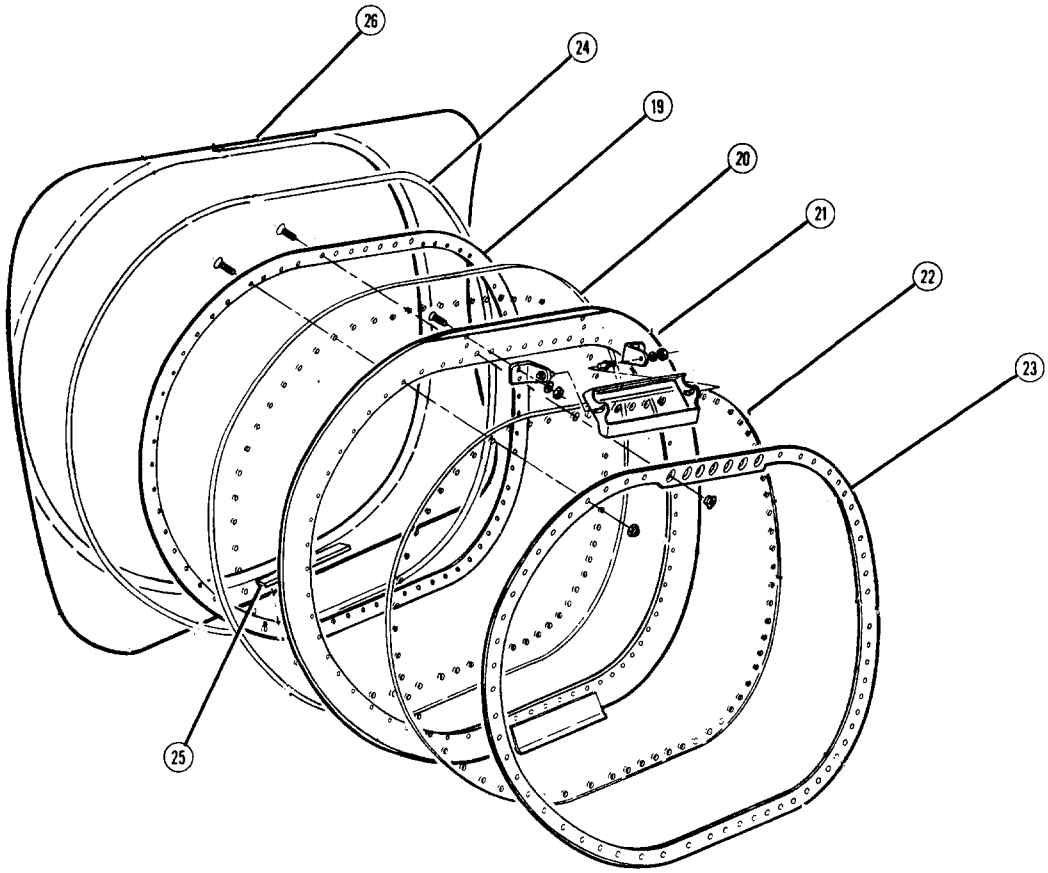
Detail A



(LH TYPICAL)

Detail B





Detail C

Cabin Window Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2311310	Cabin Window Instl., LH Aft	1	–	–	–	–
1	2311310	• Window Assy.	1	–	–	–	56-20-00
	2311310	• • Window	1	Plexiglass 1	0.414	–	56-20-00
	2311310	• • Filler	1	Dacron Acrylic	0.120	–	Replace
2	2311310	• • Window, Inner	1	Plexiglass 1	0.276	–	56-20-00
	2311310	• • Insert (58 ea.)	2	Nylon Tube	0.250	–	Replace
3	2311310	• • Retainer, Bottom	1	2024-T42	0.050	F4-1	Replace
4	2311310	• • Retainer, Top	1	2024-T42	0.050	F4-1	Replace
5	2311310	• • Retainer, Outer	1	2024-T42	0.080	F4-1	Replace
6	2311310	• • Spacer (2 ea.)	1	2024-T42	0.020	F4-1	Replace
7	2311310	• • Spacer (2 ea.)	1	2024-T42	0.020	F4-1	Replace
	2311310	• • Insert (58 ea.)	2	Nylon Tube	0.250	–	Replace
8	2311310	• • Channel (2 ea.)	1	2024-T42	0.050	F4-1	Replace
9	2311310	• • Frame	1	2024-T42	0.063	F4-1	Replace
	2311310	• • Doubler	1	2024-T42	0.063	F4-1	Replace
	2311330	Cabin Window Instl., RH Fwd	1	–	–	–	–
10	2311330	• Window Assy.	1	–	–	–	56-20-00
	2311330	• • Window	1	Plexiglass 1	0.414	–	56-20-00
	2311330	• • Filler	1	Dacron Acrylic	0.120	–	Replace
11	2311330	• • Window, Inner	1	Plexiglass 1	0.276	–	56-20-00
	2311330	• • Insert (58 ea.)	2	Nylon Tube	0.250	–	Replace
12	2311330	• • Retainer, Bottom	1	2024-T42	0.050	F4-1	Replace
13	2311330	• • Retainer, Top	1	2024-T42	0.050	F4-1	Replace
14	2311330	• • Retainer, Outer	1	2024-T42	0.080	F4-1	Replace
15	2311330	• • Spacer (2 ea.)	1	2024-T42	0.020	F4-1	Replace
16	2311330	• • Spacer (2 ea.)	1	2024-T42	0.020	F4-1	Replace
	2311330	• • Insert (58 ea.)	2	Nylon Tube	0.250	–	Replace
17	2311330	• • Channel (2 ea.)	1	2024-T42	0.050	F4-1	Replace
18	2311330	• • Frame	1	2024-T42	0.063	F4-1	Replace
	2311330	• • Doubler	1	2024-T42	0.063	F4-1	Replace
	2311320	Escape Window Instl.	1	–	–	–	–
	2311320	• Escape Window Assy.	3	–	–	–	–
	2388195	• Escape Window Assy.	4	–	–	–	–
19	2311320	• • Frame, Window Outer	1	2024-T42	0.050	F4-1	Replace
20	2311320	• • Window, Outer	1	Plexiglass 1	0.460	–	56-20-00
21	2311320	• • Spacer	1	2024-T4	0.250	F4-1	Replace
22	2311320	• • Window, Inner	1	Plexiglass 1	0.276	–	56-20-00
23	2311320	• • Retainer, Inner	1	2024-T4	0.050	–	Replace
24	2311320	• • Seal	1	S-310	–	–	Replace
25	2311320	• • Retainer, Lower	1	2024-T30	0.125	–	Replace
26	2311320	• • Retainer, Upper	1	2024-T4	0.250	–	Replace

Cabin Window Repair Index
Figure 1 (Sheet 3 of 4)

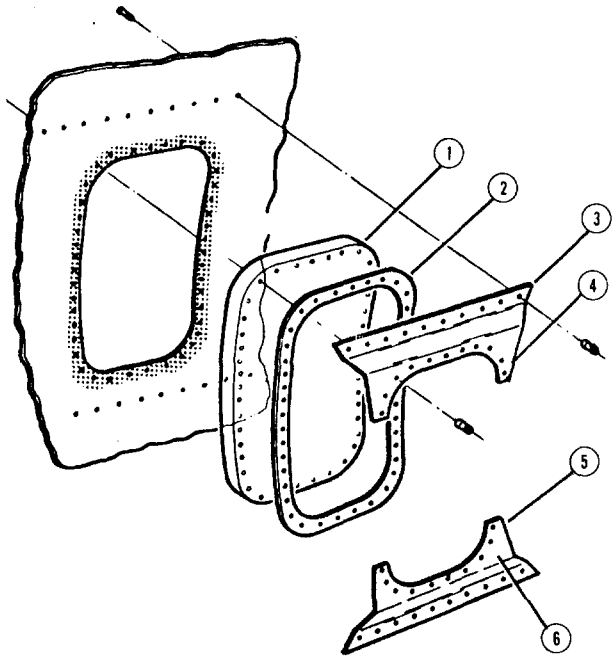
CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218
2	23-002 THRU 23-005
3	23-002 THRU 23-099
4	24-100 THRU 24-229 EXCEPT 24-218

NOTES

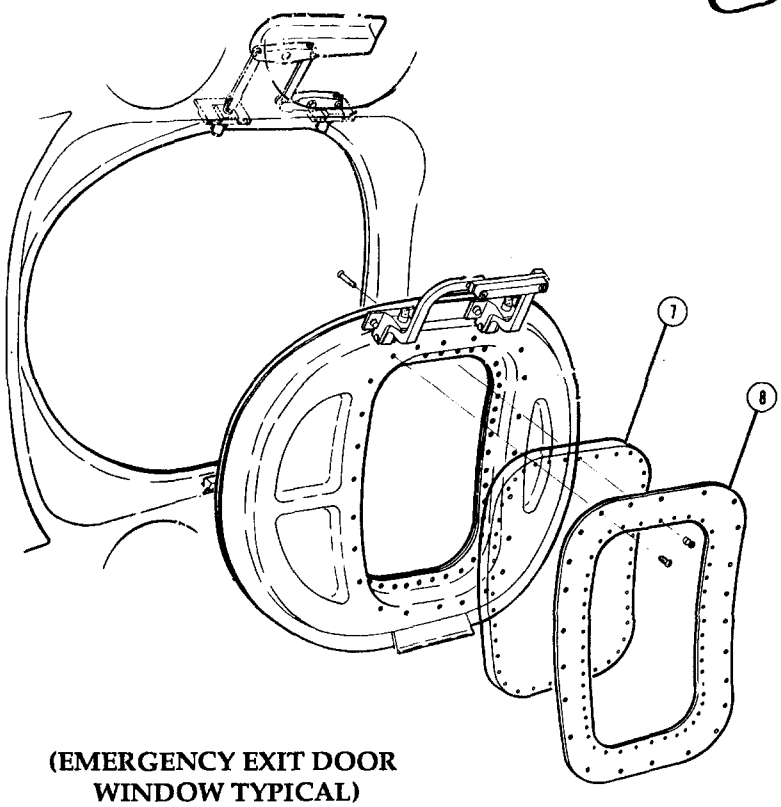
▷1 Per MIL-P-8184

Cabin Window Repair Index
Figure 1 (Sheet 4 of 4)

CABIN WINDOW - STRUCTURAL IDENTIFICATION



(CABIN WINDOW TYPICAL)



(EMERGENCY EXIT DOOR WINDOW TYPICAL)

2-6D
2-4B

Cabin Window Repair Index - Late Model 24 Series Aircraft and Model 25/28/29/31/35/36 Series Aircraft
Figure 2 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2511310	Cabin Window Instl.	1	–	–	–	–
1	6600115	• Glass Assy.	1	–	–	–	Replace
	6600115	• • Glass, Outer	1	Acrylic 1	0.414	–	56-20-00
	6600115	• • Spacer	1	–	–	–	Replace
	6600115	• • Glass, Inner	1	Acrylic 1	0.252	–	56-20-00
	2511313	• Gasket	2	Dacron Silastic	0.040	–	Replace
2	2511312	• Retainer	1	2024-T3 Clad	0.050	–	Replace
3	2511311	• Retainer, Lower	1	2024-T42 Clad	0.063	–	Replace
4	2511311	• Clip (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
5	2511311	• Retainer, Upper	1	2024-T42 Clad	0.063	–	Replace
6	2511311	• Clip (2 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2411310	Escape Hatch Instl.	1	–	–	–	–
7	6600115	• Glass Assy.	1	–	–	–	Replace
	6600115	• • Glass, Outer	1	Acrylic 1	0.414	–	56-20-00
	6600115	• • Spacer	1	–	–	–	Replace
	6600115	• • Glass, Inner	1	Acrylic 1	0.252	–	56-20-00
	2511313	• Gasket	2	Dacron Silastic	0.040	–	Replace
8	2511325	• Skin, Internal	1	2024-T3	0.063	–	Replace

CODES **EFFECTIVITIES**

1 24-218, 24-230 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT

2 24-218, 24-230 THRU 24-236; 25-061, 25-067 THRU 25-069

NOTES

1 Per MIL-P-25690.

Cabin Window Repair Index - Late Model 24 Series Aircraft and Model 25/28/29/31/35/36 Series Aircraft
Figure 2 (Sheet 2 of 2)

CABIN WINDOW - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS (CABIN WINDOW)

NOTE:
- All dimensions are in inches unless otherwise specified.
- On *Aircraft 23-003 and Subsequent, and 24-001 thru 24-217, 24-219 thru 24-229 equipped with large cabin windows*, the cabin windows are assembled from a 0.414-inch thick outer acrylic plastic, a 0.276-inch thick inner acrylic plastic, and a 0.090-inch thick spacer, sealed air tight between the inner and outer acrylic plastic.
- On *20/30 Series Aircraft equipped with small cabin windows*, the cabin windows are assembled from a 0.414-inch thick outer acrylic plastic, a 0.252-inch thick inner acrylic plastic and a 0.090-inch thick spacer, sealed air tight between the inner and outer acrylic plastic.

A. Evaluation

(1) Inspect cabin windows for damage and evaluate any damage found by the following steps:

(a) Following manufacturer's operating instructions, determine thickness of acrylic plastic adjacent to scratch, chip or pit using ultrasonic thickness gage.

(b) Measure depth of scratch, chip or pit as accurately as possible using a depth gage or other similar device.

(c) Subtract depth of scratch, chip or pit measured in step (b) from thickness of acrylic plastic measured in step (a) to determine if repairs are allowable.

NOTE:
- On *Aircraft 23-003 and Subsequent, and 24-001 thru 24-217, 24-219 thru 24-229 equipped with large cabin windows*, repeat acrylic plastic thickness measurement after repair to ensure minimum thickness of 0.400 inch (outer) and 0.250 inch (inner) is met or exceeded.
- On *20/30 Series Aircraft equipped with small cabin windows*, repeat acrylic plastic thickness measurement after repair to ensure minimum thickness of 0.370 inch (outer) and 0.220 inch (inner) is met or exceeded.

B. Scratches, Nicks, and Pits

NOTE: The following discrepancies are considered unrepairable. Cabin windows with any one of these discrepancies shall be removed from service.

(1) On *Aircraft 23-003 and Subsequent, and 24-001 thru 24-217, 24-219 thru 24-229 equipped with large cabin windows,* any scratch, nick or pit reducing the outer window thickness to less than 0.400 inch, or any sharp-bottomed ("V") scratch or nick that cannot be repaired without reducing the outer window thickness to less than 0.400 inch shall be removed from service.

(2) On *20/30 Series Aircraft equipped with small cabin windows,* any scratch, nick or pit reducing the outer window thickness to less than 0.370 inch, or any sharp-bottomed ("V") scratch or nick that cannot be repaired without reducing the outer window thickness to less than 0.370 inch shall be removed from service..

(3) On *Aircraft 23-003 and Subsequent, and 24-001 thru 24-217, 24-219 thru 24-229 equipped with large cabin windows,* any scratch, nick or pit reducing the inner window thickness to less than 0.250 inch or any sharp-bottomed ("V") scratch or nick that cannot be repaired without reducing the inner window thickness to less than 0.250 inch shall be removed from service..

(4) On 20/30 Series Aircraft equipped with standard cabin windows, any scratch, nick or pit reducing the inner window thickness to less than 0.220 inch or any sharp-bottomed ("V") scratch or nick that cannot be repaired without reducing the inner window thickness to less than 0.220 inch shall be removed from service.

C. Cracks and Separations

NOTE:
- On Aircraft 23-003 and Subsequent, and 24-001 thru 24-217, 24-219 thru 24-229 equipped with large cabin windows, refer to the applicable Learjet Service Manual for additional information.
- On 20/30 Series Aircraft equipped with standard cabin windows, perform the following evaluations.

(1) Any continuous crack extending between two (2) or more fastener holes.
(2) Any cracks originating from the radius of the step in the outer window, or any location other than a fastener hole.
(3) Any fastener hole crack greater than 0.20 inch in length extending toward the center of the window, or any fastener hole crack greater than 0.35 inch extending in any other direction.
(4) Cracks in more than three (3) adjacent fastener holes.
(5) Cracks in more than five (5) out of ten (10) adjacent fastener holes.
(6) Cracks in more than twelve (12) fastener holes for the entire window.
(7) Two (2) or more cracks originating from the same fastener hole toward the edge, that could result in a section breaking out of the window.
(8) Any chipping extending more than 0.09 inch radially from the edge of holes on more than eight (8) holes.
(9) Any chipping on the perimeter of the window or on machined fillets extending more than 0.09 inch from the surface or edge.
(10) More than two (2) chips in any six (6) inch length.

2. ALLOWABLE DAMAGE LIMITS (CABIN WINDOW STRUCTURE)

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
(1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
(2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
(1) Cracks in any fitting are not allowed. Cracked fittings must be replaced.
(2) Cracks in components other than fittings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
(1) Deformation of the cabin window structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

Nominal Thickness (Inch)	**Minimum Thickness** (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

CHAPTER

57

WINGS

Learjet

STRUCTURAL REPAIR MANUAL

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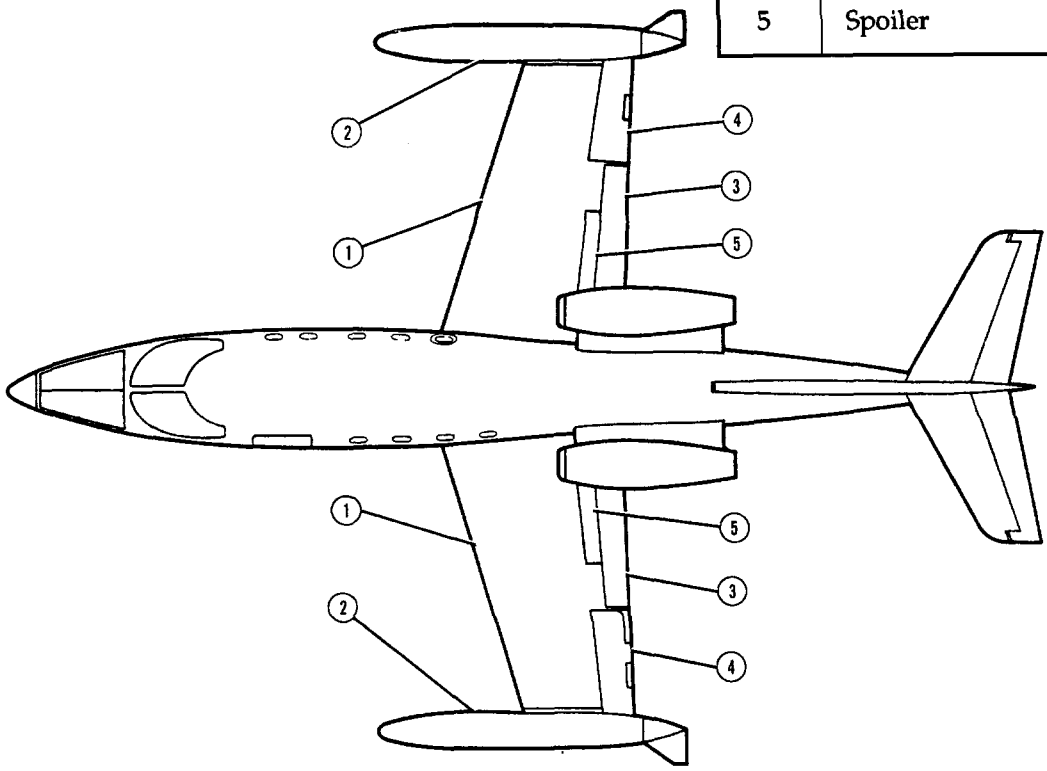
WING ASSEMBLY - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. This chapter covers structural components, allowable damage limits, skin gap tolerances and repair of aircraft stabilizers.
B. The wing assembly consists of the leading edge assembly and wing box section, tip tanks or winglets, ailerons, flaps, and spoilers.
C. Repair indexes are incorporated in each respective section for the specific components.
D. Allowable damage limits for each component are given in each respective section.

Item	Description	Chapter Section Subject
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2	Tip Tank	57-31-00
3	Flap	57-50-00
4	Aileron	57-60-00
5	Spoiler	57-70-00

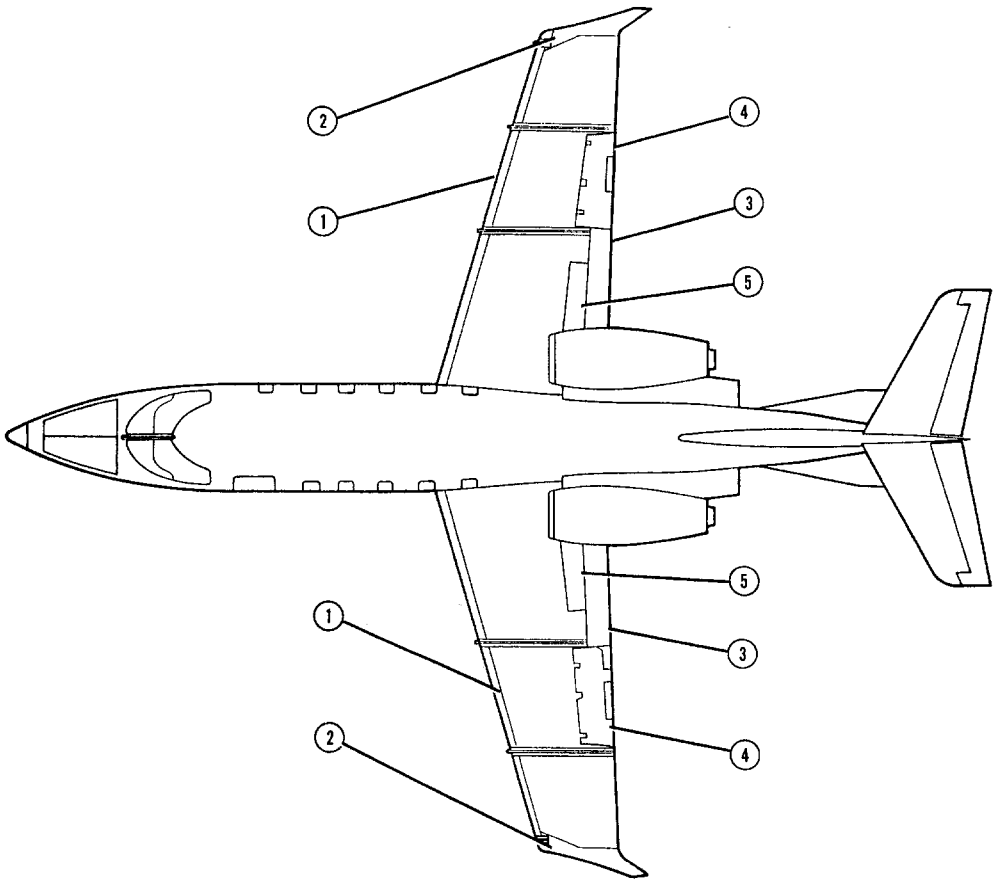


(TYPICAL)

14-29B-1

Wing Assembly Structural Identification
Figure 1 (Sheet 1 of 3)

Item	Description	Chapter Section Subject
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2	Winglet	57-30-00
3	Flap	57-50-00
4	Aileron	57-60-00
5	Spoiler	57-70-00



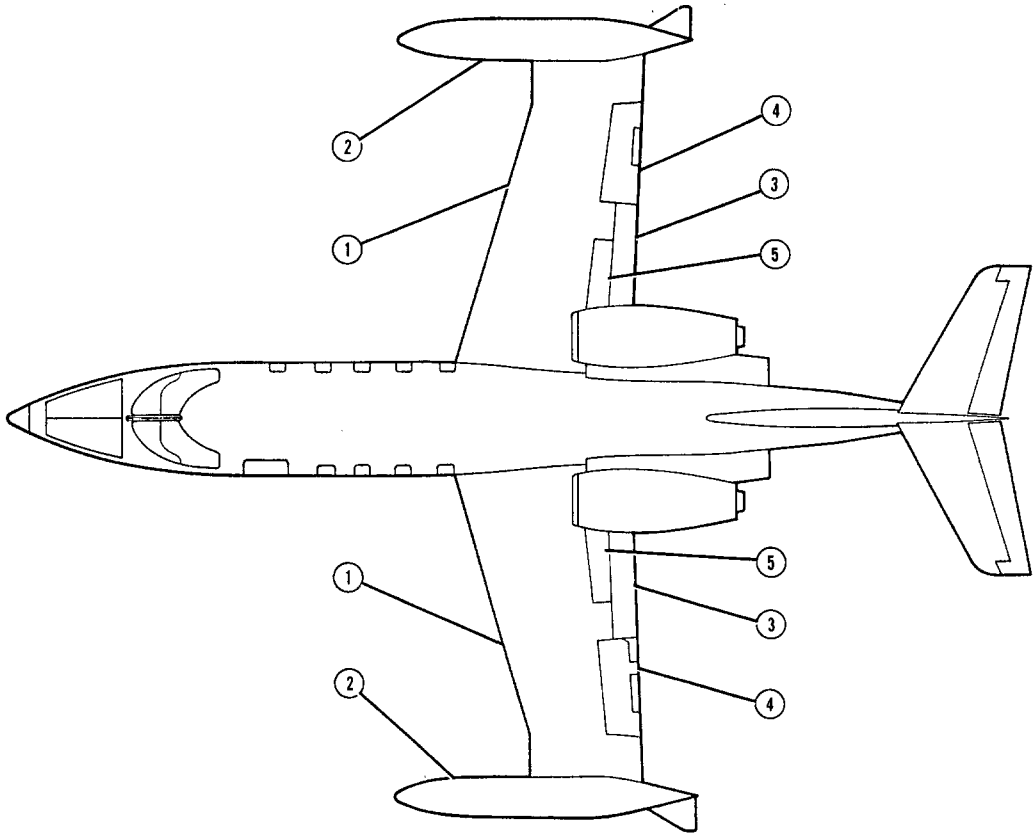
(TYPICAL)

14-90C-6

Wing Assembly Structural Identification
Figure 1 (Sheet 2 of 3)

WING ASSEMBLY - STRUCTURAL IDENTIFICATION

Item	Description	Chapter Section Subject
1	Wing	57-11-00
2	Tip Tank	57-31-00
3	Flap	57-50-00
4	Aileron	57-60-00
5	Spoiler	57-70-00



(TYPICAL)

14-90C-1

Wing Assembly Structural Identification
Figure 1 (Sheet 3 of 3)

Learjet

TEMPORARY REVISION NO. 57-1

MANUAL AFFECTED: Learjet 20/30 Series Structural Repair Manual. (SRM-4)

FILING INSTRUCTIONS: Insert adjacent to 57-00-00, Page 101, dated May 15/92, and retain until further notice

REASON: To clarify allowable damage limits for the wing leading edge.

INSTRUCTIONS: Revise paragraph E., F. and G. in **1. ALLOWABLE DAMAGE LIMITS,** and Figure 101 as follows:

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the wing structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired and refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. However, if more than surface corrosion is encountered on the lower wing skin, after removal of the wing-to-fuselage fairings, contact Learjet Field Service for proper evaluation and disposition of corrosion damage. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents to wing skins on upper surfaces are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.
   (3) Dents in the wing leading edge in general are not allowed, as they may effect the aerodynamic characteristics of the aircraft. Small smooth dents may be allowable, after a review by Learjet Engineering has been accomplished, depending on location and depth. If the operator chooses not to repair dents which Learjet Engineering will not approve for continued service, a Flight test to verify aerodynamic acceptability and stall speeds must be performed by Learjet Test Pilots before the aircraft can be returned to service.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.
   (3) For procedures to remove scratches from the wing leading edge, refer to the basic Learjet Maintenance Manual or Service Manual.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.
   (3) For procedures to remove nicks from the wing leading edge, refer to the basic Learjet Maintenance Manual or Service Manual.

Nominal Thickness (Inch)	**Minimum Thickness** (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.040 (Wing L. E. Only)*
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

* For localized repair areas only.

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the wing structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired and refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. However, if more than surface corrosion is encountered on the lower wing skin, after removal of the wing-to-fuselage fairings, contact Learjet Field Service for proper evaluation and disposition of corrosion damage. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
(1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
(2) Fittings or forgings with bushing shall be repaired..

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

WING ASSEMBLY - REPAIR

1. GENERAL
   A. It is the responsibility of the aircraft owner/maintenance facility to determine qualifications of maintenance personnel performing repair procedures. As always, a clean environment and good general shop practices shall be exercised any time repairs are performed on the aircraft.
   B. Prior to, and after performing, any structural repairs on the wing assembly, ensure serviceability and reliability of part. If serviceability and/or reliability of any part or repair remains in question or if guidance is needed in making this determination, contact Learjet Field Service for additional information.
   C. Repairs must be equal to, or greater in strength, than the original structure. Technique and material variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   D. Repairs for structure not included in this section does not necessarily indicate that the structure involved is non-repairable, but that the application of a typical repair procedure to theoretical damage has not yet been developed.
   E. Refer to Chapter 51 for allowable wear and repair data, and for standard repair procedures not specified in this section.
   F. Following any repair or maintenance procedures on the aircraft structure/components, update all aircraft log books as required.
   G. Following any repair or maintenance procedures on the aircraft structure/components, ensure inspection records pertaining to any specific repair-related procedure are identified, properly documented and closely adhered too.
   H. All parts fabricated by the repair facility shall be identified for future reference. Marking of parts shall be accomplished in a manner which does not effect the serviceability and reliability of the part.

2. LIMITATIONS AND INSPECTIONS
   A. Limitations
      (1) Learjet engineering approved repairs listed in this section, are limited to those items/areas as outlined in step 4., REPAIR PROCEDURES.
      (2) Limitations applied to repairs in this section must be followed unless Learjet engineering authority to the contrary is given.
      (3) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. Cracks in any fitting or forging are not allowed. Fittings or forgings with bushing shall be repaired.
      (4) Authorized maintenance to the wing leading edge without Learjet factory approval is limited to removal and installation. A new wing leading edge shall be installed at an authorized Learjet repair facility.

3. MATERIALS AND PROCESSES
   A. Materials
      (1) Repair materials and required treatments or processes will be listed in the repair procedure. Material or treatment variation is permissible only so far as to facilitate fabrication and ensure the original strength and usefulness of the affected component.
   B. Processes
      (1) Refer to Chapter 51 for chemical process and treatment specifications.

4. REPAIR PROCEDURES

NOTE: All dimensions are in inches unless otherwise specified.

A. Replacement of Upper Wing Skin Fasteners (See Figure 201.)

(1) Mark each fastener having one or more of the following conditions:
   (a) Paint on fastener missing (except when it is suspected that the paint did not properly adhere to the fastener).
   (b) Cracked paint and streaking or black rings around fasteners indicating a "working" fastener.
   (c) Fuel seepage around fastener.
   (d) Paint blister on fastener (fuel under paint).

(2) Compare the suspect fastener with the fastener pattern shown in Figure 201.

CAUTION:
- **IF ANY ONE OF THE FASTENERS IN ANY ONE OF THE INDICATED BOXES REQUIRES REPLACEMENT, ALL THE FASTENERS CONTAINED IN THAT BOX MUST BE REPLACED.**
- **REMOVE AND REPLACE EVERY OTHER FASTENER WITHIN THE ROW AND, UPON COMPLETION, REPLACE THE REMAINING FASTENERS WITHIN THE BOX.**

(3) Defuel aircraft. (Refer to the basic Learjet Maintenance Manual.)

(4) Close crossflow valve and remove electrical power from aircraft.

(5) Cover upper wing skin with masking tape adjacent to the fastener(s) previously marked for removal.

(6) Remove wing lower access panels as required to gain access to wing tank areas where fastener replacement is required.

CAUTION: **WHEN DRILLING OUT EXISTING FASTENERS, EXERCISE EXTREME CARE SO THAT HOLES OR COUNTERSINKS DO NOT BECOME DAMAGED. EXCESSIVE DRILL PRESSURE MAY DEFORM THE UNDERSTRUCTURE, CAUSING DAMAGE TO THE FUEL SEAL BARRIER.**

(7) Remove existing fasteners marked for removal. Check each hole diameter and material thickness for grip length. Mark this information on the masking tape previously installed.

(8) Select new bolts to fit holes with a 0.0007 to 0.0012 inch (0.018 to 0.030 mm) interference. On a severely damaged hole, the next oversize fastener should be used.

(9) Using a hole brush, remove sealant and loose particles before drilling and reaming. Pilot drill hole. Pilot ream and final ream hole to attain the desired diameter.

NOTE: When replacing 5/32-diameter Huck Bolt, with next oversized fastener, pilot drill and countersink holes to a 6/32 diameter standard hole. (See Replacement Fastener Table.) Two-step ream in order to attain the desired hole size.

(10) Using grip length previously marked on tape, select the correct bolt length for each location.

NOTE: The grip length for any one fastener may vary from one unit to the next due to material thickness variance as a result of shimming and sealing during manufacturing. It is permissible to use one grip length shorter or longer than shown.

(11) Dip bolt into sealant and insert bolt in hole.

CAUTION: **DO NOT OVER TORQUE BOLTS. OVER TORQUING OF BOLTS MAY DEFORM THE UNDERSTRUCTURE AND DAMAGE FUEL SEAL, CAUSING LEAKAGE AT ADJACENT FASTENERS.**

(12) Install washer and start nut on bolt. Hold bolt from turning and torque nut 20 to 25 inch-pounds (2.2 to 2.8 N·m) for 3/16-inch diameter bolts, or 50 to 70 inch-pounds (5.6 to 7.9 N·m) for 1/4-inch diameter bolts.

NOTE: All torque values are in addition to the drag-torque of the nut.

(13) After all fasteners have been replaced, inspect the integral fuel tank sealing and repair as required. Seal over fasteners that have been replaced. (Refer to the basic Learjet Maintenance Manual.)

NOTE: If seal is not damaged, apply an additional layer of sealant over the existing fillet seal. Seal over all replaced fasteners and nuts.

(14) Thoroughly clean shavings and foreign particles from each fuel tank cavity in which rework was done.

CAUTION: **IT IS ABSOLUTELY ESSENTIAL THAT EACH FUEL TANK CAVITY IN THE AREA WHERE THE REWORK WAS PERFORMED BE THOROUGHLY INSPECTED FOR CLEANLINESS, AND THAT ALL FOREIGN MATERIAL IS REMOVED PRIOR TO THE FINAL CLOSING OF THE FUEL TANKS. FAILURE TO THOROUGHLY CLEAN THE FUEL TANKS AFTER REWORK MAY CAUSE THE FUEL SYSTEM COMPONENTS TO MALFUNCTION.**

(15) Inspect fuel tank access opening seals for damage. Replace seal if required. (Refer to the basic Learjet Maintenance Manual.)

(16) Install access covers.

(17) Flush wing fuel tank to remove any remaining foreign particles as follows:

(a) Equipment required. (See Figure 202.)

1) Motor-driven pump capable of pumping 10 gpm.
2) A 50-micron filter.
3) Holding tank (one-half of 55 gallon drum).
4) Plumbing necessary to connect flushing components.
5) Approximately 20 gallons of fuel.

CAUTION: COMPLY WITH ALL STANDARD MAINTENANCE PRECAUTIONS (REFER TO THE BASIC LEARJET MAINTENANCE MANUAL) WHILE FLUSHING TANKS.

(b) Position holding tank under applicable wing defuel valve.
(c) On *Model 23/24/25/35/36 Series Aircraft*, route the hose attached to the pump through the tip tank, then through one of the wing interconnects and into the wing tank.
(d) On *Model 28/29/31 Series Aircraft*, route the hose attached to pump into wing tank.
(e) Fill holding tank with approximately 20 gallons of fuel.
(f) Remove bushing and drain valve from defuel valve.
(g) Open defuel valve.
(h) Circulate fuel for 30 minutes (15 minutes through each interconnect).
(i) Repeat procedure on opposite wing tank.
(j) Drain wing sumps and remove hose from tank.
(k) Close defuel valve and install bushing and drain valve.

(18) Refuel wing tanks and check for leaks.
(19) Fill screw heads and countersinks, flush with wing skin, using sealant.

NOTE: It is optional to fill and smooth over heads of replaced fasteners using Pro-Seal 890B2 sealant or EC1751 and allow to cure prior to final paint. It is permissible to machine J-Bolt stems flush with fastener heads and fill recesses with Pro-Seal 890B2 or EC1751.

(20) Clean wing surface and retouch paint.
(21) The low pressure fuel filters shall be checked for foreign particles not later than the next 30 flight hours after this rework.
(22) Restore electrical power to aircraft.
(23) Restore aircraft to normal.

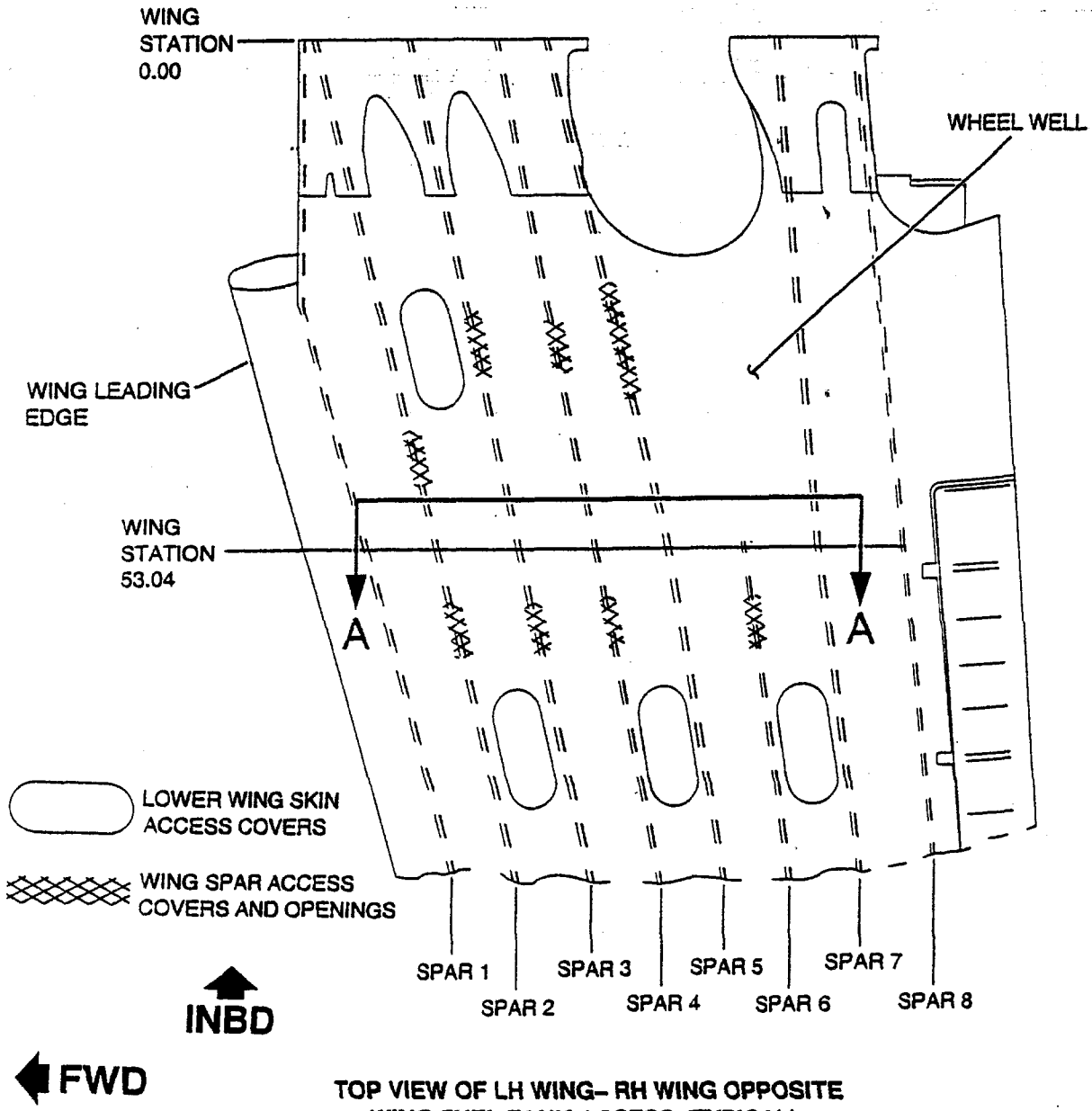
TEMPORARY REVISION NO. 57-4

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to 57-00-00, page 205, dated Jan 15/93 and retain until further notice.

REASON: To clarify fastener replacement information.

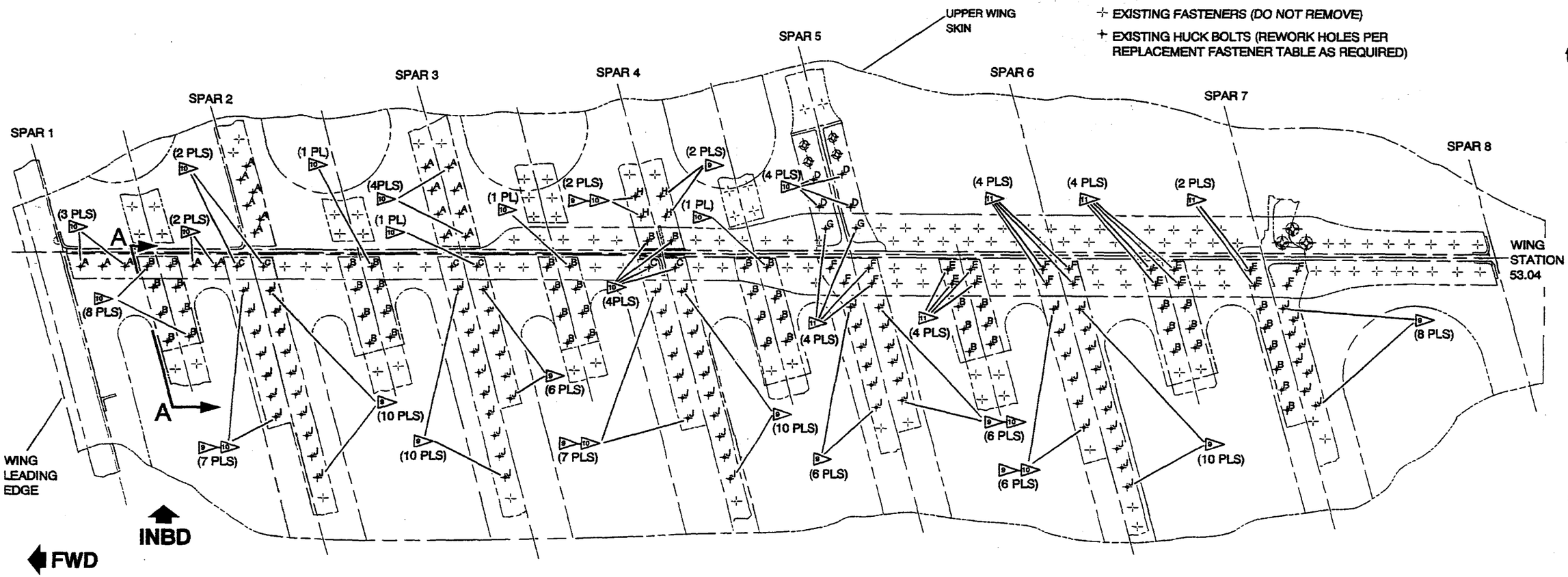
INSTRUCTIONS: Revise Replacement of Upper Wing Skin Fasteners illustration as follows:



TOP VIEW OF LH WING– RH WING OPPOSITE WING FUEL TANK ACCESS (TYPICAL)

S20-570000-201-01

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 1 of 3)



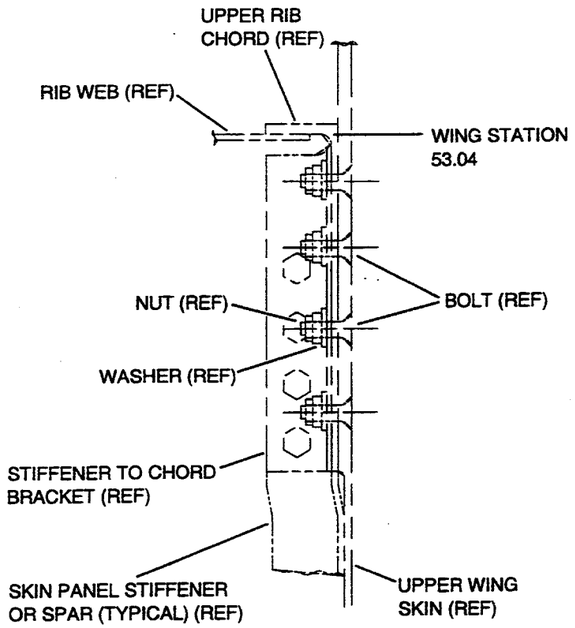
REPLACEMENT FASTENER TABLE

Symbol	Qty Per A/C	Production instl. Blueprint Fastener Ref. Data	First Repair/Replacement Fastener Data					Second Repair Replacement Fastener Data
			7 Bolt (1/64 O.S.)	Nut	Washer	Instl Hole Size	Instl C'sk Size	Next Oversize (1/32 O.S.) 3
J	172	Huck P/N B100-T5	NAS1503-7	MS21042-3	AN960PD10	6	0.381 Dia x 100°	NAS1243-7 6
H	8	Huck P/N B100-T5	NAS1503-6	MS21042-3	AN960PD10	6	0.381 Dia x 100°	NAS1243-6 6
G	4	Huck P/N B100-T8	NAS1503-8 2	MS21042-4	-3	6	Use Existing C'sk	NAS1254-8 6
F	20	Huck P/N B100-T8	NAS1503-7 2	MS21042-4	-3	6	Use Existing C'sk	NAS1254-7 6
E	20	Huck P/N B100-T8	NAS1503-6 2	MS21042-4	-3	6	Use Existing C'sk	NAS1254-6 6
D	8	Huck P/N B100-T6	NAS1503-7 1	MS21042-3	-2	6	Use Existing C'sk	NAS1253-8 6
C	12	Huck P/N B100-T6	NAS1503-7 1	MS21042-3	-2	6	Use Existing C'sk	NAS1253-7 6
B	104	Huck P/N B100-T6	NAS1503-7 1	MS21042-3	-2	6	Use Existing C'sk	NAS1253-6 6
A	38	Huck P/N B100-T6	NAS1503-7 1	MS21042-3	-2	6	Use Existing C'sk	NAS1253-5 6

S20-570000-201-02

NOTE: For fastener call-outs beyond the second repair type, call Wichita Field Support Engineering for a disposition.

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 2 of 3)



FASTENER INSTALLATION (TYPICAL)

View A–A

S20–570000–201–03

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 3 of 3)



Under the following conditions, it may be necessary to replace all of the fasteners contained within a designated boxed area:

- The replacement fastener is not of the same type or one listed in the replacement table.
- After replacement of a single leaking fastener, subsequent aircraft operation produces additional leaking fasteners within the original repair boxed area.

It has been found that replacement of a leaking fastener can cause adjacent fasteners within a boxed off area to leak. If this occurs we recommend the following steps:

1. As a singular corrective action, replace the additional (one each) leaking fastener following the same guidelines as listed above.
2. Subsequently, additional leaks within the original boxed off repair area shall require replacement of all remaining fasteners. The following replacement sequence is recommended:
   - First, replace every other fastener within the row in the box.
   - Next, replace the remaining fasteners.

If you are not sure whether or not to replace all the fasteners, contact Learjet Technical Services for assistance.

NOTES

1. The following bolts are alternate for NAS1243-X.
   NAS1243-XT (Short Thread)
   NAS1703-XR (Long Thread)
   NAS1703-X (No Suffix) (Long Thread)
   NAS1703T-X (Long Thread)
   NAS1703 T-X-R (Long Thread)

2. The following bolts are alternate for NAS1244-X.
   NAS1244-XT (Short Thread)
   NAS1704-X-R (Long Thread)
   NAS1704-X (No Suffix) (Long Thread)
   NAS1704T-X-R (Long Thread)
   NAS1704T-X (Long Thread)

3. Next oversize fastener may be used in the event of a severely damaged hole or for future rework.

4. There may be instances where the actual fastener diameter installed on the aircraft will be different from what is shown because of a repair made during manufacturing of the wing. In these instances the bolt diameter must agree with the actual diameter of the hole and use the grip length shown.

5. The grip length for any one fastener may vary from one unit to the next due to material thickness variance as a result of shimming and sealing during manufacturing.

   It is permissible to use one grip length shorter or longer than shown.

6. Inspect fillet seal for damage or breaks. If it is damaged, remove and replace seal. If seal is not damaged, apply an additional layer of sealant over existing fillet seal.

   Seal over all replaced fasteners and nuts.

7. BACB30LU bolts may be used as alternates by conforming with flag note 8.

8. Select bolts to fit holes with a 0.0007 to 0.0012 inch (0.018 to 0.030 mm) interference fit.

9. Optional to use Huck Bolt P/N B100-T6-X blind fastener at this location, providing that the proper installation tools are available. Assure proper grip and comply with flag note 8 and other pertinent instructions. The factory recommends that screws and nuts be used at a minimum of every other location to assure parts are brought into a proper shear condition. The screws and nuts must be installed prior to installing Huck Bolts.

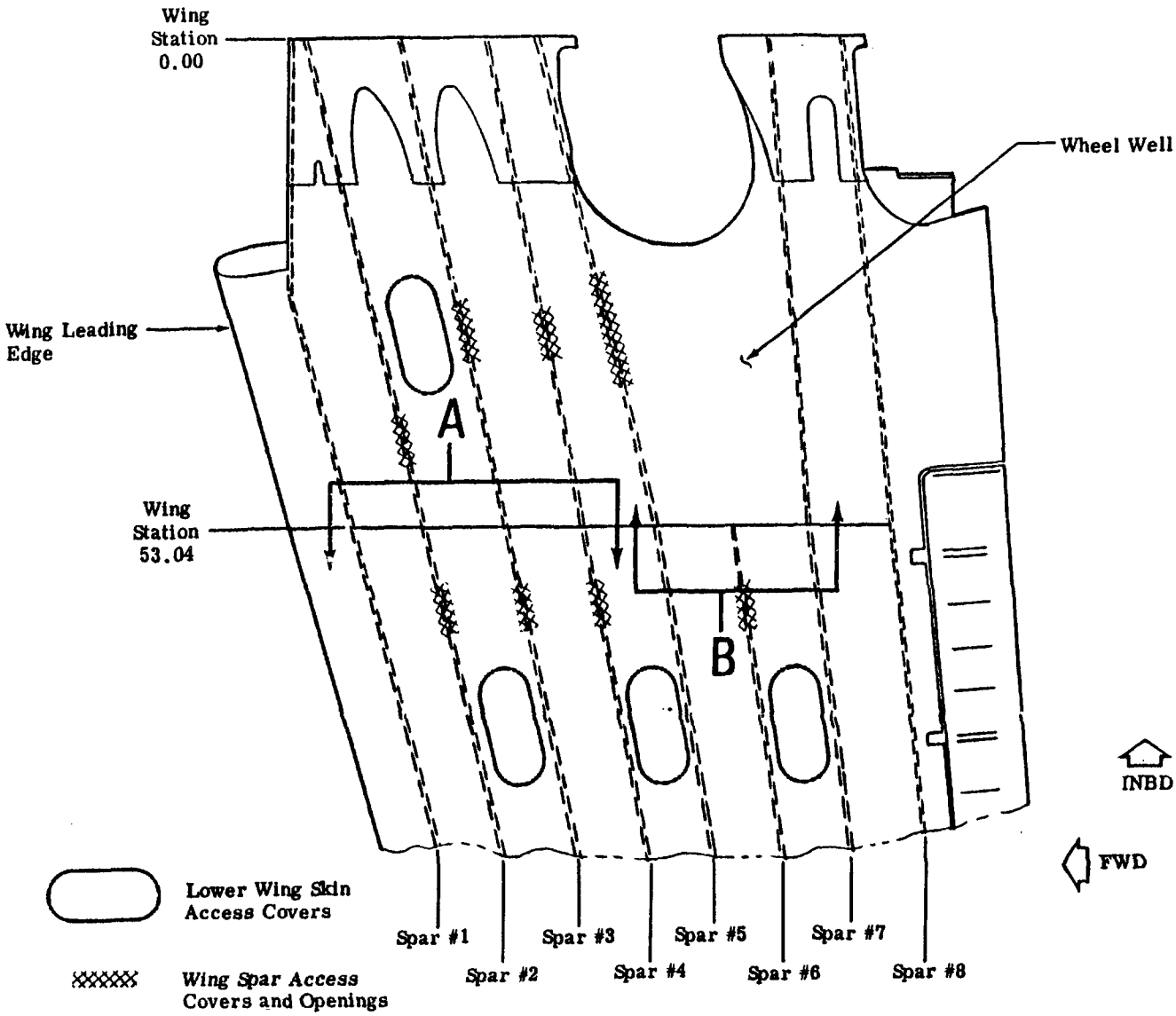
10. Optional to use Jo-Bolt P/N PLT 1006-6-X blind fastener at this location, providing that the proper installation tools are available. Assure proper grip and comply with flag note 8 and other pertinent instructions. The factory recommends that screws and nuts be used at a minimum of every other location to assure parts are brought into a proper shear condition. The screws and nuts must be installed prior to installing Jo-Bolts.

11. It is optional to use Jo-Bolt P/N PLT 1006-8-X blind fasteners at this location as specified by flag note 10 instructions.

12. NAS1603 series bolts (Long Thread) may be used as alternates to NAS1253 series bolts.

13. NAS1604 series bolts (Long Thread) may be used as alternates to NAS1254 series bolts.

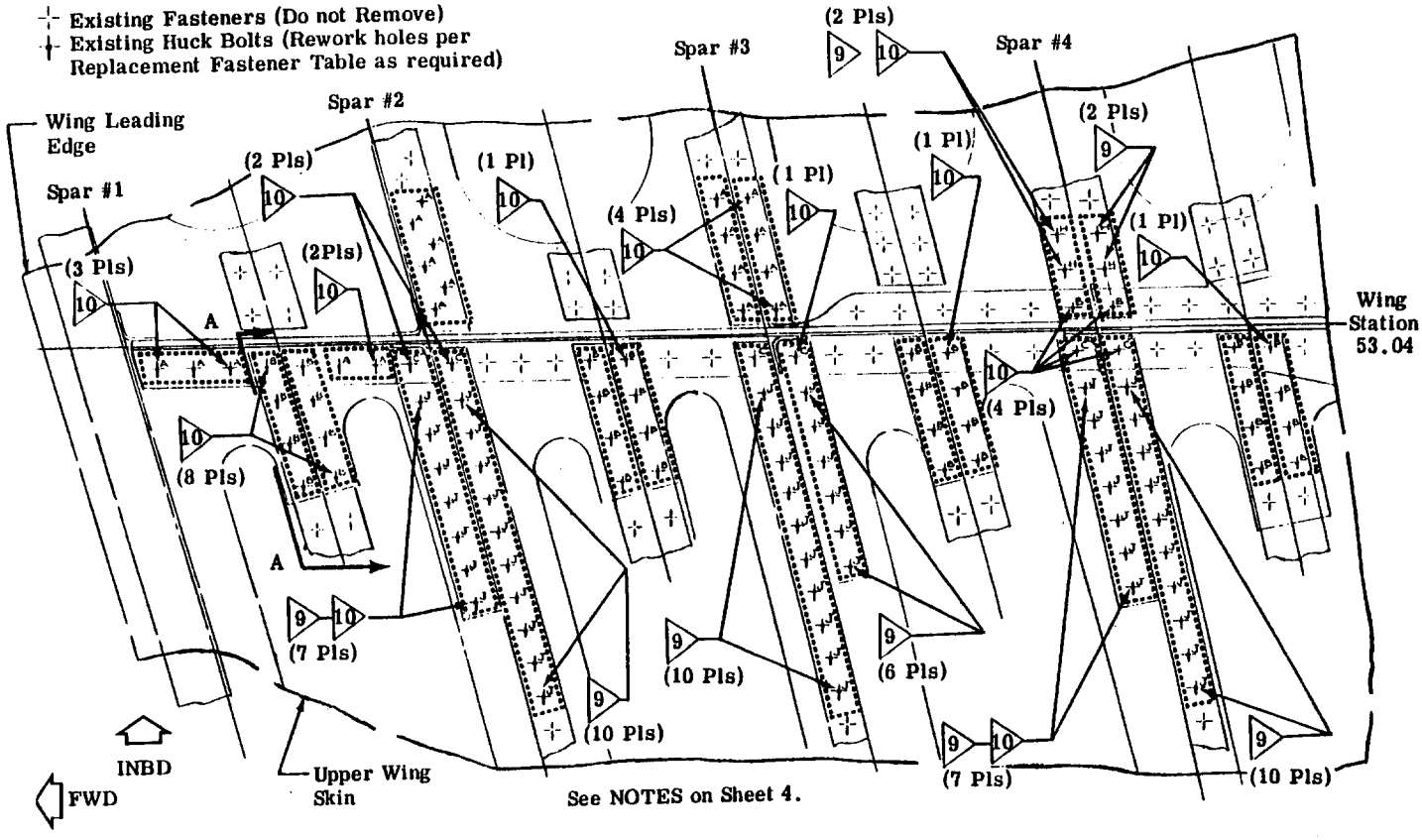
14. For cosmetic purposes only, it is permissible to machine Jo-Bolt stems flush with fastener heads and fill recesses and smooth over heads of replaced fasteners using ProSeal 890B2 sealant or EC 1751. Allow to cure prior to final paint.



TOP VIEW OF LH WING - RH WING OPPOSITE

WING FUEL TANK ACCESS (TYPICAL)

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 1 of 4)



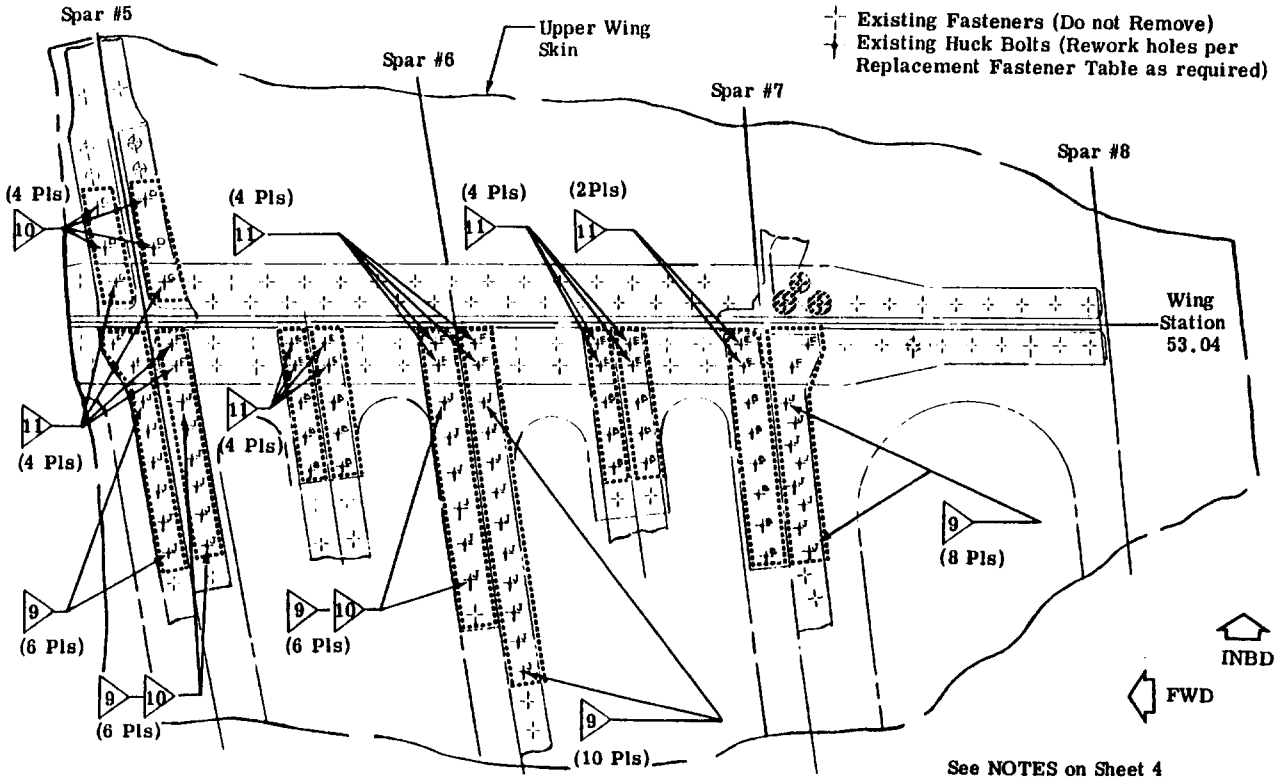
REPLACEMENT FASTENER TABLE

Symbol	Qty Per A/C	7 Bolt (1/64 O.S.)	Nut	Washer	Instl Hole Size	Instl C'sk Size	Replaced Bolt P/N (Ref)	Next Oversize 3 (1/32 O.S.)
J	172	NAS1503-7	MS21042-3	AN960PD10	8	.381 Dia x 100°	Huck P/N B100-T5	NAS1243-7
H	8	NAS1503-6	MS21042-3	AN960PD10		.381 Dia x 100°	Huck P/N B100-T5	NAS1243-6
G	4	NAS1244-8	MS21042-4	-3		Use Existing C'sk	Huck P/N B100-T8	NAS1254-8
F	20	NAS1244-7 2	MS21042-4	-3		Use Existing C'sk	Huck P/N B100-T8	NAS1254-7
E	20	NAS1244-6	MS21042-4	-3		Use Existing C'sk	Huck P/N B100-T8	NAS1254-6 8
D	8	NAS1243-8	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-8
C	12	NAS1243-7 1	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-7
B	104	NAS1243-6	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-6
A	38	NAS1243-5	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-5

Detail A

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 2 of 4)

NOTE: Please see the **TEMPORARY REVISION** that revises this page.



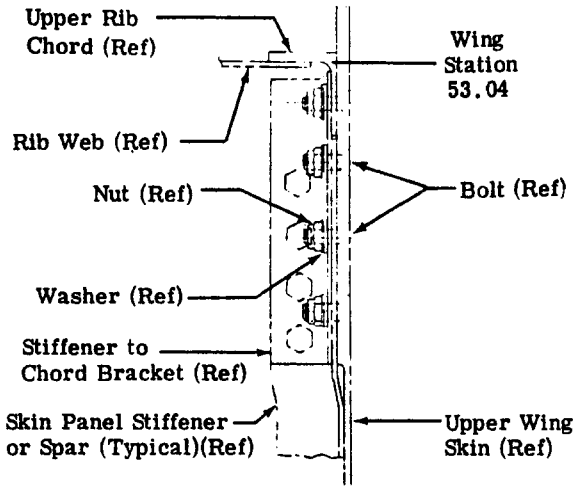
REPLACEMENT FASTENER TABLE

Symbol	Qty Per A/C	7 Bolt (1/64 O.S.)	Nut	Washer	Instl Hole Size	Instl C'sk Size	Replaced Bolt P/N (Ref)	Next Oversize (1/32 O.S.) 3
J	172	NAS1503-7	MS21042-3	AN960PD10	8	.381 Dia x 100°	Huck P/N B100-T5	NAS1243-7
H	8	NAS1503-6	MS21042-3	AN960PD10		.381 Dia x 100°	Huck P/N B100-T5	NAS1243-6
G	4	NAS1244-8	MS21042-4	-3		Use Existing C'sk	Huck P/N B100-T8	NAS1254-8
F	20	NAS1244-7 2	MS21042-4	-3		Use Existing C'sk	Huck P/N B100-T8	NAS1254-7
E	20	NAS1244-6	MS21042-4	-3		Use Existing C'sk	Huck P/N B100-T8	NAS1254-6
D	8	NAS1243-8	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-8
C	12	NAS1243-7 1	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-7
B	104	NAS1243-6	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-6
A	38	NAS1243-5	MS21042-3	-2		Use Existing C'sk	Huck P/N B100-T6	NAS1253-5

Detail B

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 3 of 4)

NOTE: Please see the TEMPORARY REVISION that revises this page.



FASTENER INSTALLATION - TYPICAL

VIEW A-A

If any one of the fasteners in any one of the boxes require replacement, all the fasteners contained in that box must be replaced.

Remove and replace every other fastener within the row and upon completion, replace the remaining fasteners within the box.

FLAG NOTES

1. The following bolts are alternate for NAS1243-X.
   NAS1243-XT (Short Thread)
   NAS1703-XR (Long Thread)
   NAS1703-X (No Suffix) (Long Thread)
   NAS1703T-X (Long Thread)
   NAS1703 T-X-R (Long Thread)

2. The following bolts are alternate for NAS1244-X.
   NAS1244-XT (Short Thread)
   NAS1704-X-R (Long Thread)
   NAS1704-X (No Suffix) (Long Thread)
   NAS1704T-X-R (Long Thread)
   NAS1704T-X (Long Thread)

3. Next oversize fastener may be used in the event of a severely damaged hole or for future rework.

4. There may be instances where the actual fastener diameter installed on the aircraft will be different from what is shown because of a repair made during manufacturing of the wing. In these instances the bolt diameter must agree with the actual diameter of the hole and use the grip length shown.

5. The grip length for any one fastener may vary from one unit to the next due to material thickness variance as a result of shimming and sealing during manufacturing.

   It is permissible to use one grip length shorter or longer than shown.

6. Inspect fillet seal for damage or breaks. If it is damaged, remove and replace seal. If seal is not damaged, apply an additional layer of sealant over existing fillet seal.

   Seal over all replaced fasteners and nuts.

7. BACB30LU bolts may be used as alternates by conforming with flag note 8.

8. Select bolts to fit holes with a 0.0007 to 0.0012 inch (0.018 to 0.030 mm) interference fit.

9. Optional to use Huck Bolt P/N B100-T6-X blind fastener at this location, providing that the proper installation tools are available. Assure proper grip and comply with flag note 8 and other pertinent instructions. The factory recommends that screws and nuts be used at a minimum of every other location to assure parts are brought into a proper shear condition. The screws and nuts must be installed prior to installing Huck Bolts.

10. Optional to use Jo-Bolt P/N PLT 1006-6-X blind fastener at this location, providing that the proper installation tools are available. Assure proper grip and comply with flag note 8 and other pertinent instructions. The factory recommends that screws and nuts be used at a minimum of every other location to assure parts are brought into a proper shear condition. The screws and nuts must be installed prior to installing Jo-Bolts.

11. It is optional to use Jo-Bolt P/N PLT 1006-8-X blind fasteners at this location as specified by flag note 10 instructions.

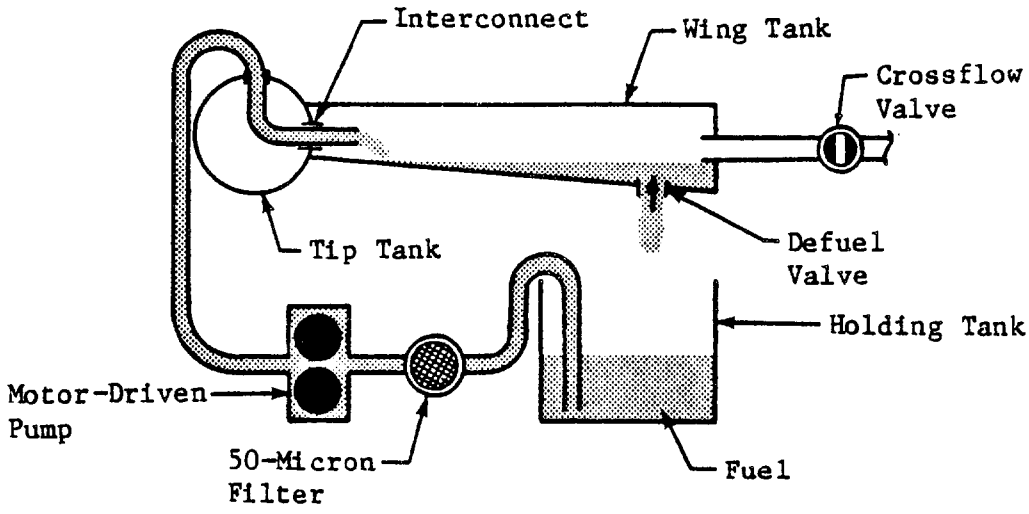
12. NAS1603 series bolts (Long Thread) may be used as alternates to NAS1253 series bolts.

13. NAS1604 series bolts (Long Thread) may be used as alternates to NAS1254 series bolts.

14. It is optional to fill and smooth over heads of replaced fasteners using ProSeal 890B2 sealant or EC 1751 and allow to cure prior to final paint.

15. It is permissible to machine Jo-Bolt stems flush with fastener heads and fill recesses per flag note 14 instructions.

Replacement of Upper Wing Skin Fasteners
Figure 201 (Sheet 4 of 4)



Wing Tank Flushing Schematic
Figure 202

B. Lower Wing Skin Extension Access Cover Installation (*Learjet Inst. #2684150-1*) (See Figure 203.)

NOTE:
- Installation procedures for both LH and RH lower wing skin extension access covers are identical unless otherwise specified.
- While location of *Lower Wing Skin Extension Access Cover Installation #2684150-1* may vary (see Detail D), the maximum allowable number of access cover installations is one per wing extension.

(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Countersink (0.339x100°)		Commercially available	Countersink door
Drill	#19	Commercially available	Drill holes for screws matching nutplates
Drill	#30	Commercially available	Drill holes for rivets

(2) Parts and Materials

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Access Door	2684150-4	Fabricate locally 0.090 x 2024-T3 clad	Closure for access hole
Doubler	2684150-3	Fabricate locally 0.100 x 2024-T3 clad	Strengthen structure around access hole
Screw (12 ea.)	NAS1202-3	Commercially available	Secure door assembly to lower wing surface
Nutplate (12 ea.)	4600H-82	STD. Pressed Steel Co. Precision Fasteners Div. Santa Ana, CA	Secure door assembly to lower wing surface
Rivet (16 ea.)	MS20426AD4-6	Commercially available	Secure door to doubler

NAME	PART NUMBER	MANUFACTURER	USE
Rivet (28 ea.)	MS20426AD3-6	Commercially available	Attach nutplates
Sealant	Pro-Seal 890	Product Research & Chemical Corp. 5454 San Franado Rd. Glendale, CA 91209	Seal door assembly to wing skin
Anti-Corrosion Grease (MIL-G-25537)	Aero Shell #14		Faying wing skin surface around access hole area to allow for electrical bonding for lighting strike protection.

(3) Repair Procedure: (See Figure 203.)
(a) Fabricate 2684150-4 access door. (See Detail A.)

MATERIAL NOTE: Fabricate access door out of 0.090 x 2024-T3 clad aluminum.

(b) Chemically treat exterior of door per F1. Treat interior side per F4-4 except for outer 0.60 inch portion (mating with doubler) which shall be treated per F1. (Refer to Chapter 51, Protective Treatment of Structural Materials.)
(c) Fabricate 2684150-3 doubler. (See Detail B.)

MATERIAL NOTE: Fabricate doubler out of 0.100 x 2024-T3 clad aluminum.

NOTE: Do not drill screw hole locations in doubler at this time.

(d) Chemically treat doubler per F4-4 except apply F1 to the area where doubler mates with wing skin.
(e) Lay out and mark position of door on wing lower surface. (See Detail D.)
(f) Using access door as a template, mark outline of door on wing surface. (See Detail D.)

NOTE: Final trim access opening to obtain a 0.050 inch maximum gap between door and access opening.

(g) Clamp door at center of doubler. Ensure that 0.62 inch edge margin is maintained from edge of door to edge of doubler.
(h) Drill 14 #30 (0.1285) diameter holes for rivets. Cleco holes as drilling progresses. (See Detail C.)
(i) Remove door from doubler and deburr holes. Countersink holes in door for rivets.

(j) Attach access door to doubler using MS20426AD4-6 rivets wet with sealer. (See Detail C.)
(k) Epoxy primer and paint door exterior to match as required.
(l) Raise door and doubler up through access opening and then lower into place so that door is properly aligned with cutout.
(m) Drill 12 #19 (0.166) diameter holes through wing skin and doubler. Cleco each hole as drilling progresses. (See Detail E.)
(n) Remove door and doubler from wing. Deburr holes and finish per F1. (Refer to 51-30-04.)
(o) Drill #30 (0.1285) diameter holes, drill holes for rivets securing nutplates to doubler.
(p) Attach nutplates on doubler using MS20426AD3-4 rivets. Ensure nutplates align with holes drilled in step (n). Fay seal nutplates with Pro-Seal 890 Class B 1/2 sealant.
(q) Countersink and deburr holes in wing skin. Epoxy primer and paint wing skin to match as required.
(r) Apply a light coating of corrosion preservative per MIL-G-25537 around access opening on the interior skin surface only. (See Detail E.)

CAUTION: TAKE PRECAUTION TO PREVENT SEALANT FROM EXTRUDING INTO MATING SURFACES OF WING SKIN AND DOOR ASSEMBLY.

(s) Apply a bead of Pro-Seal 890 Class B 1/2 sealant around edge of doubler and reposition cover assembly in wing skin. Ensure that door is properly aligned in cutout. (See Detail E.)
(t) Install screws securing cover assembly to wing skin.
(u) Update all aircraft log books to indicate that *Lower Wing Skin Extension Access Cover Installation #2684150-1* has been installed.
(v) Restore aircraft to normal.

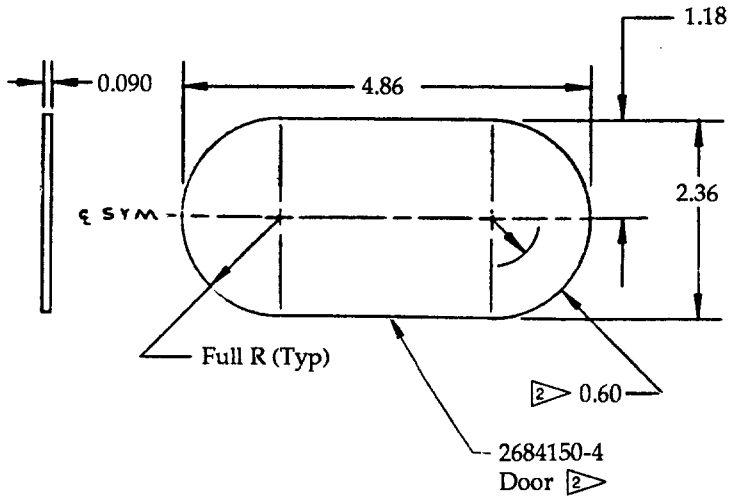
1. Finish -2 door assembly (F4-4) except apply F1 only between door assembly and wing skin faying surface.

2. Finish exterior of -4 door (F1). Finish interior (F4-4) except apply F1 only within the indicated 0.60 inch dimension between door and doubler.

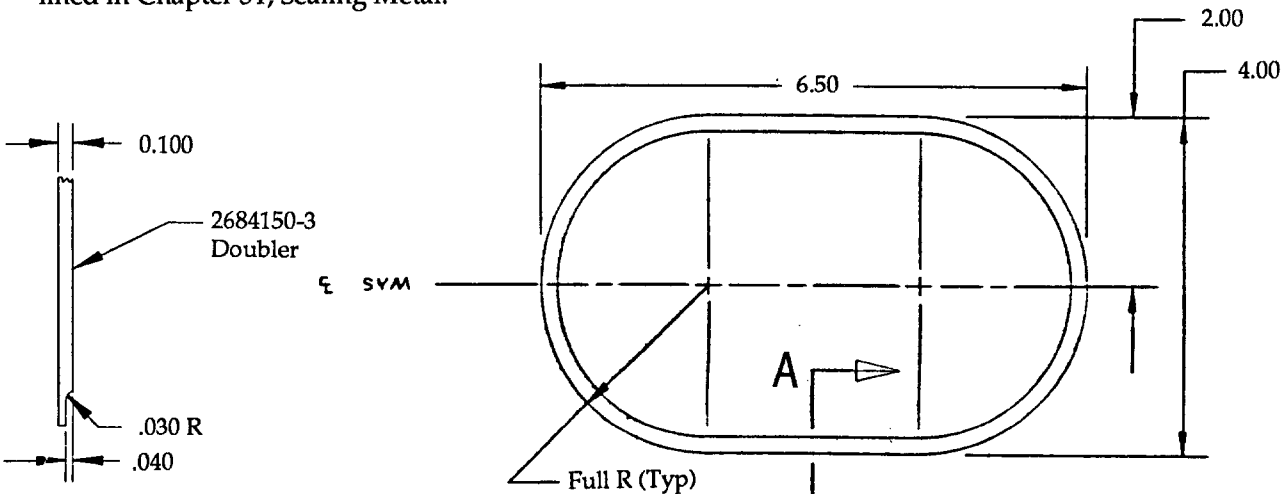
3. No faying surface finish within indicated area except apply AERO SHELL number 14 anti-corrosion grease per MIL-G-25537.

4. Apply parting agent to wing skin and install -2 door assembly with sealant applied to door assembly ledge only. Special precaution shall be taken to prevent sealant from extruding into the mating surface of the wing skin and assembly.

5. Seal in accordance with procedures outlined in Chapter 51, Sealing Metal.



Detail A

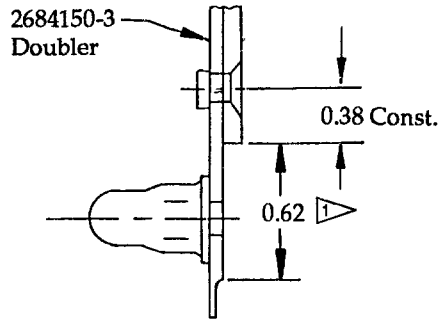


Section A - A

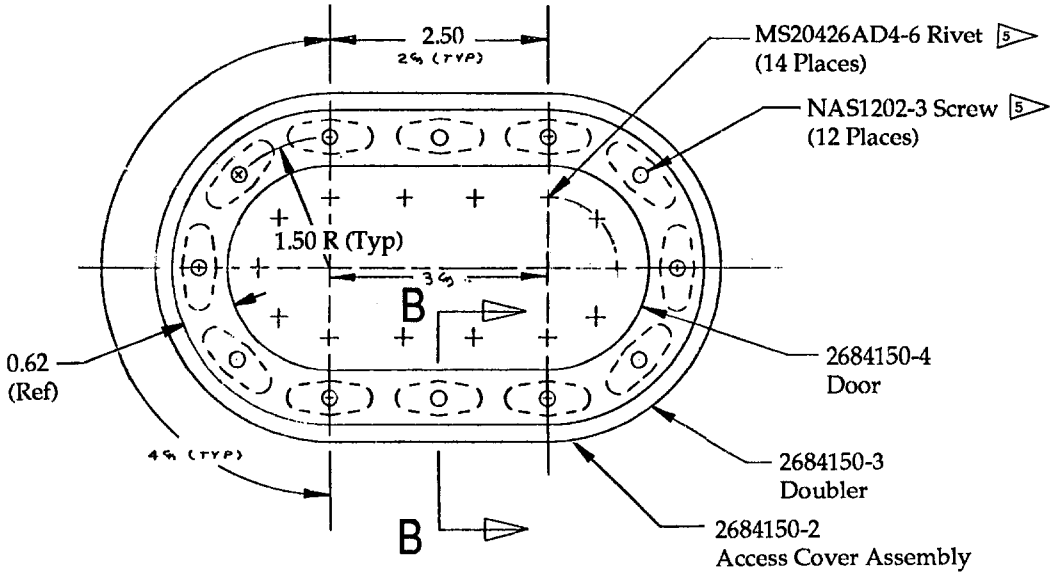
Detail B

Repro

Lower Wing Skin Extension Access Cover - Repair
Figure 203 (Sheet 1 of 4)



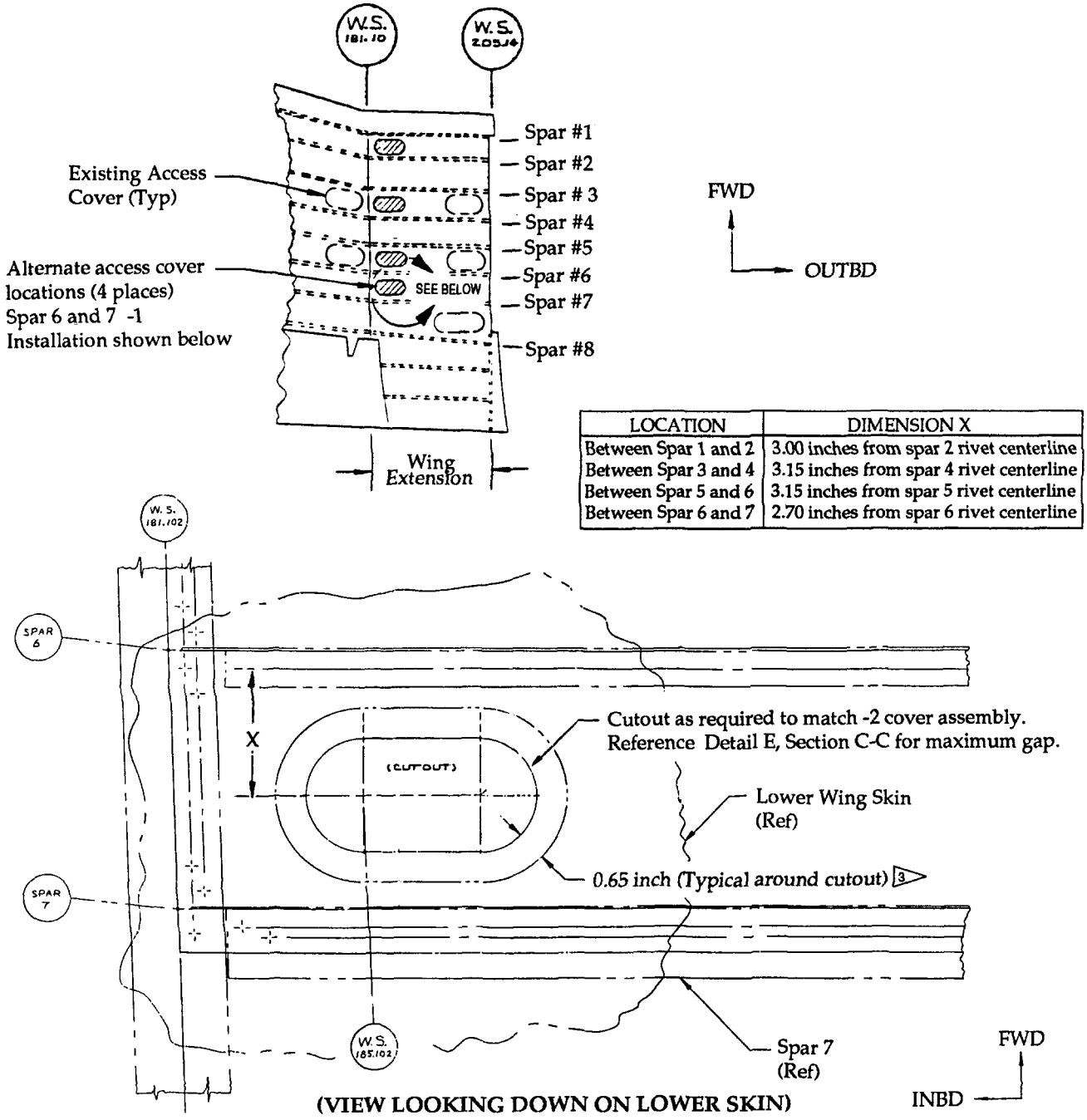
Section B - B



Detail C

Repro

Lower Wing Skin Extension Access Cover - Repair
Figure 203 (Sheet 2 of 4)

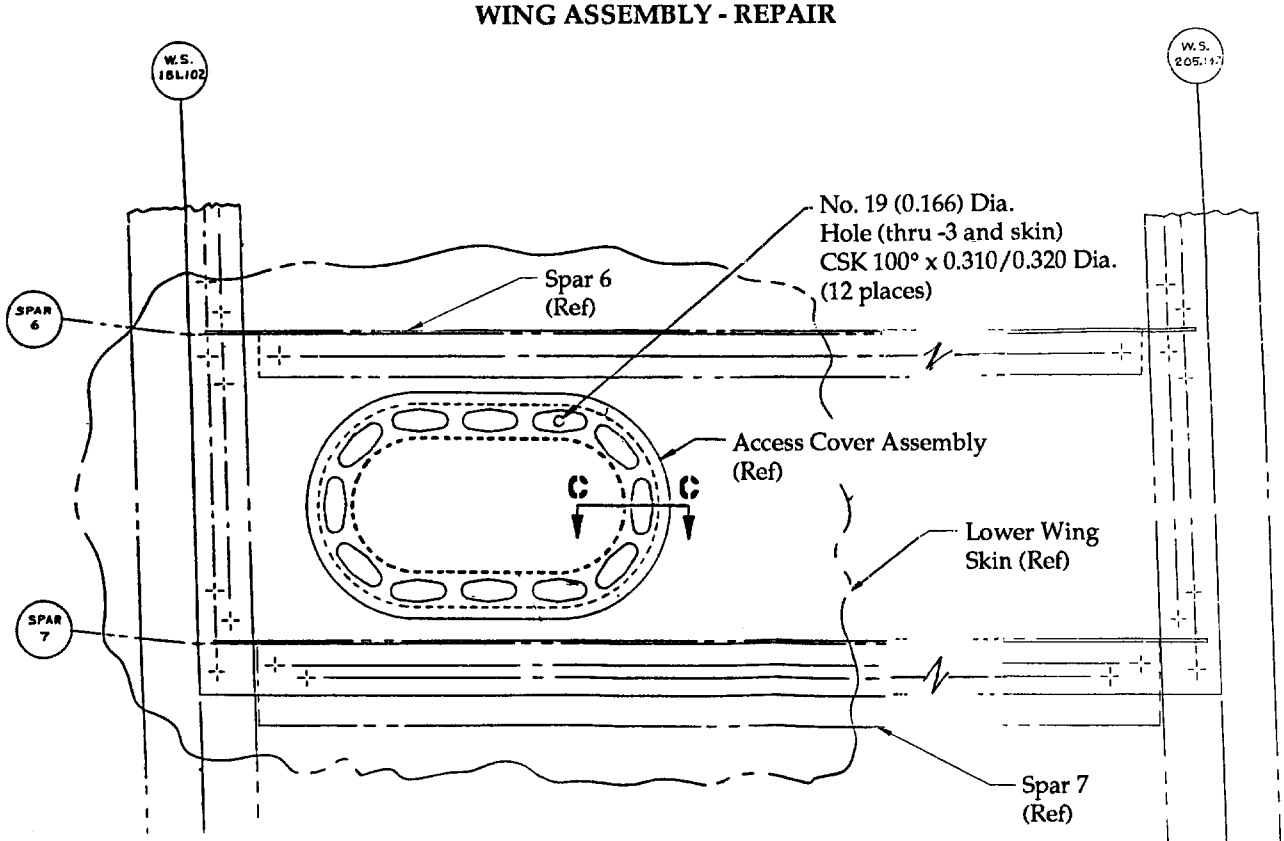


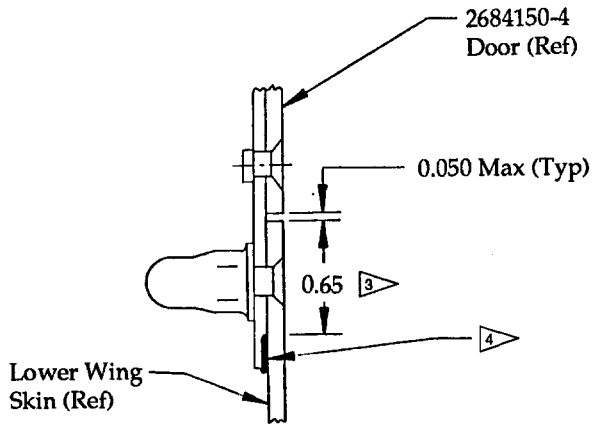
LOCATION	DIMENSION X
Between Spar 1 and 2	3.00 inches from spar 2 rivet centerline
Between Spar 3 and 4	3.15 inches from spar 4 rivet centerline
Between Spar 5 and 6	3.15 inches from spar 5 rivet centerline
Between Spar 6 and 7	2.70 inches from spar 6 rivet centerline

Detail D

Repro

Lower Wing Skin Extension Access Cover - Repair
Figure 203 (Sheet 3 of 4)





Section C - C

(VIEW LOOKING DOWN ON LOWER SKIN)

Detail E

Repro

Lower Wing Skin Extension Access Cover - Repair
Figure 203 (Sheet 4 of 4)

C. Spar #1 Repair Access Panel Installation (*Learjet Inst. #12235-021-1 [LH] and 12235-021-2 [RH]*) (See Figure 204.)

NOTE: Installation procedures for both LH and RH spar #1 repair access panels are identical unless otherwise specified.

(1) Tools and Equipment

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Countersink (100°)		Commercially available	Countersink doubler
Drill	#19	Commercially available	Drill cover, doubler and spar
Drill	#30	Commercially available	Drill rivet holes

(2) Parts and Materials

NOTE: Equivalent substitutes may be used in lieu of the following:

NAME	PART NUMBER	MANUFACTURER	USE
Doubler	12235-021-4	Fabricate locally 0.080 x 2024-T3 clad	Repair access panel
Cover	12235-021-5	Fabricate locally 0.063 x 2024-T3 clad	Repair access panel
Screw (12 ea.)	NAS220-8	Commercially available	Secure cover to spar
Nutplate (13 ea.)	M14600H82	Standard Pressed Steel Co. Jenkintown, PA	Secure cover to spar
Rivet (10 ea.)	CSR902B	Commercially available	Secure doubler to spar
Rivet (26 ea.)	MS20426AD3	Commercially available	Secure nutplates to cover
Rivet (7 ea.)	MS20470AD5	Commercially available	Secure doubler and stiffener to spar
Pro-Seal	890 Class B 1/2	Products Research & Chemical Corp. 5454 San Franado Rd. Glendale, CA 91209	Seal nutplates and doubler

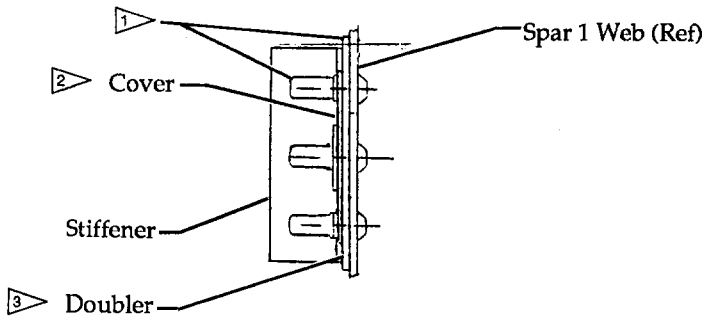
(3) Repair Procedure: (See Figure 204.)
  (a) Remove applicable wing outboard leading edge. (Refer to the basic Learjet maintenance manual.)
  (b) Locate and cut access panel hole in spar 1 web. (See Detail A.)
  (c) Chemically treat reworked area for corrosion and touch-up exterior surface with primer.
  (d) Carefully remove stiffener from aft side of spar and retain for reinstallation.
  (e) Fabricate 12235-021-5 cover. (See Detail B.)

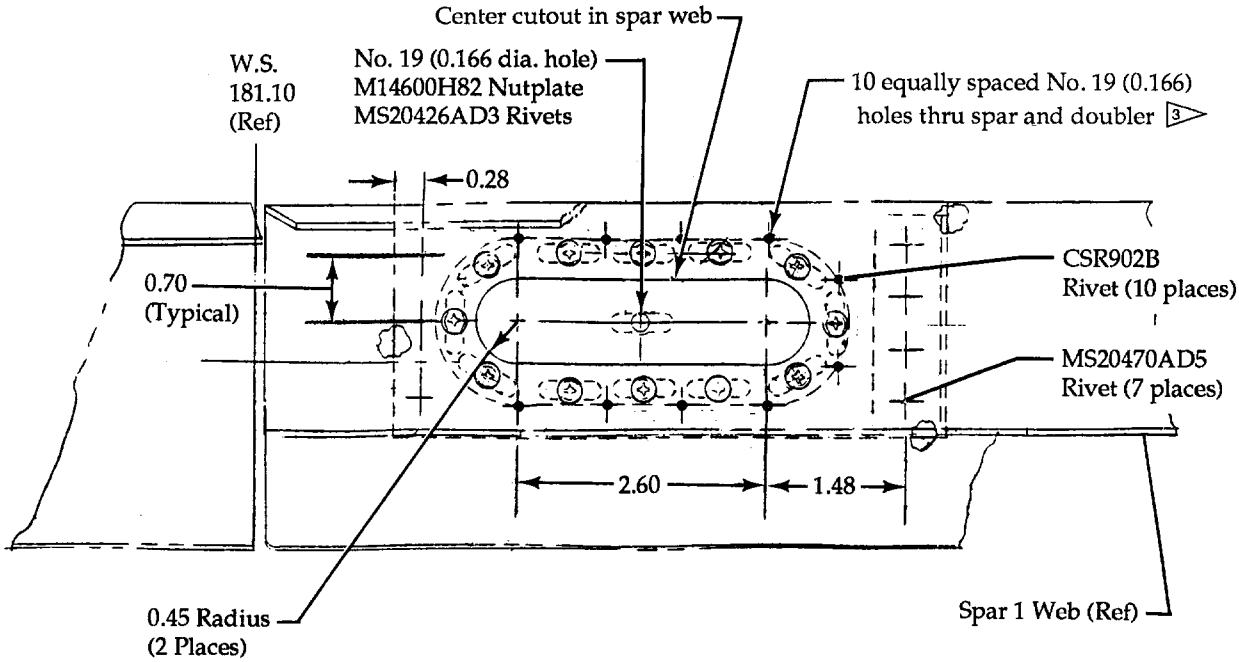
    MATERIAL NOTE: *Fabricate 12235-021-5 cover out of 0.063 inch 2024-T3 clad aluminum.*

  (f) Fabricate 12235-021-4 doubler. (See Detail C.) Do not drill screw holes in doubler at this time.

    MATERIAL NOTE: Fabricate 12235-021-4 doubler out of 0.080 inch 2024-T3 clad aluminum.

  (g) Epoxy prime cover and doubler, and identify for future reference.
  (h) Drill #19 (0.166) diameter hole in center of cover. Drill No. 40 (0.09375) diameter holes for nutplate rivets and install M14600H82 nutplate to cover with MS20470AD3 rivets.
  (i) Install an NAS220-8 screw in nutplate. Screw is used as an installation aid to help in holding cover in position while marking holes and installing cover.
  (j) Position cover over access panel hole cutout, providing maximum edge distance obtainable. Locate and mark 12 hole locations on spar.
  (k) Remove cover and check hole locations for a minimum edge distance of 0.200 inch.
  (l) Position doubler on aft side of spar and locate 10 holes. (See Detail A.)
  (m) Drill 10 #19 (0.166) diameter holes through spar and doubler.
  (n) Remove doubler and countersink aft side of 10 holes drilled in step (l).
  (o) Drill remaining holes for rivets in doubler common to spar.
  (p) Apply Pro-Seal 890 Class B 1/2 sealant to doubler and spar mating surfaces. Position doubler on spar and secure in place, at 12 locations, using CSR902B rivets. (See Detail A.)
  (q) Apply Pro-Seal 890 Class B 1/2 sealant to stiffener (previously removed) and doubler mating surfaces. Position stiffener on doubler and secure in place, at 4 locations, using MS20470AD5 rivets. Install MS20470AD5 rivets at 3 remaining locations through doubler and spar. (See Detail A.)
  (r) Attach M14600H82 nutplates on cover using MS20426AD3 rivets. Ensure that nutplates align with holes drilled in step (m). Fay seal nutplates with Pro-Seal 890 Class B 1/2 sealant.
  (s) Apply a parting agent and a bead of Pro-Seal 890 Class B 1/2 sealant around edge of cover (refer to Chapter 51) to form a seal.
  (t) Install cover on spar using NAS220-8 screws.
  (u) Remove screw from center nutplate of cover.
  (v) Install wing outboard leading edge. (Refer to the basic Learjet maintenance manual.)
  (w) Update all aircraft log books to indicate that *Spar #1 Repair Access Panel Installation #12235-021-1 (LH)/-2 (RH)* has been installed.
  (x) Restore aircraft to normal.





(VIEW LOOKING AFT)

(RH SHOWN, LH OPPOSITE)

Detail A

Repro

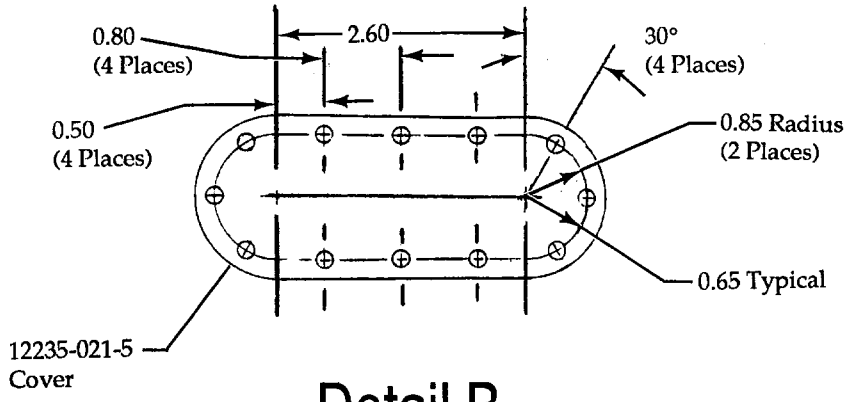
Spar #1 Repair Access Panel Installation - Repair
Figure 204 (Sheet 1 of 2)

NOTES:

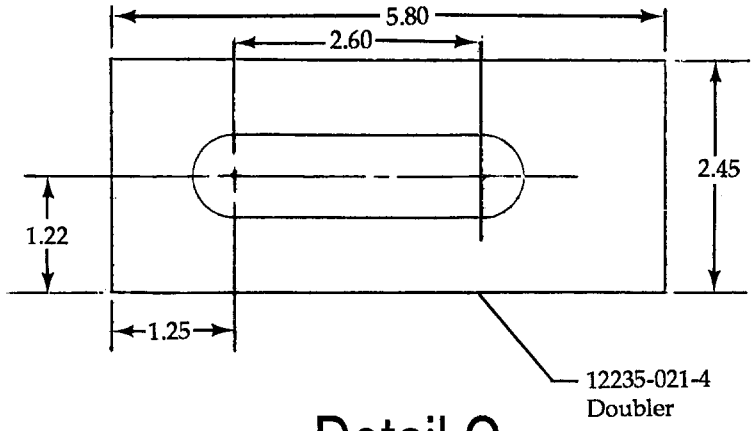
1. Seal nutplates and doubler using Pro-Seal 890 Class B 1/2.

2. Apply fay seal to cover using parting agent at installation to affect a cover seal.

3. Use Pro-Seal 890 Class B 1/2 on all contact surfaces.



Detail B



Detail C

Repro

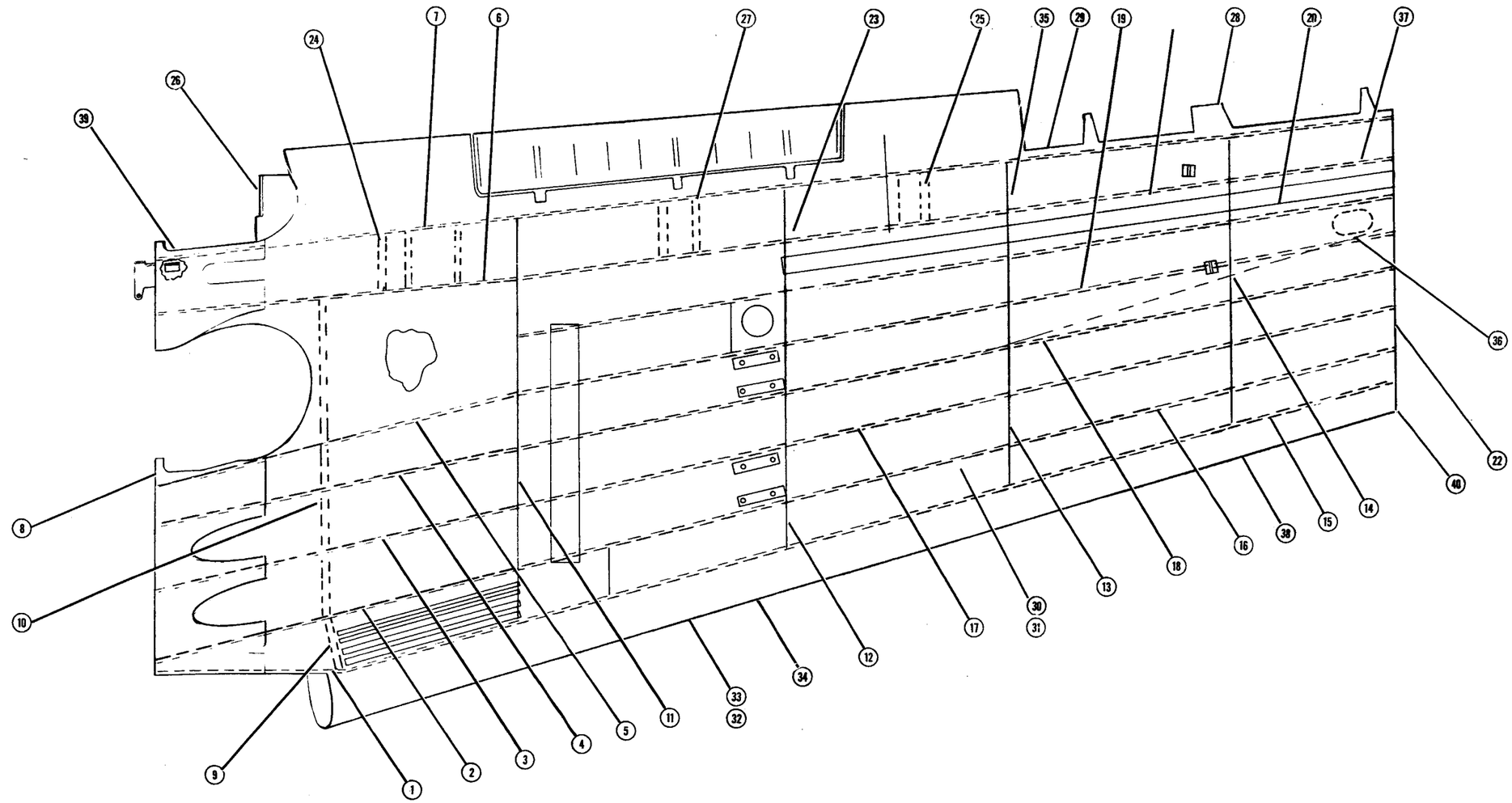
Spar #1 Repair Access Panel Installation - Repair
Figure 204 (Sheet 2 of 2)

WING - STRUCTURAL IDENTIFICATION

1. DESCRIPTION

NOTE The following structural data covers the basic non-modified aircraft. When applicable, refer to the appropriate kit drawing for additions, modifications and changes to the structural components and assemblies.

A. The wing assemly consists of the leading edge assembly and wing box section, tip tanks or winglets, ailerons, flaps, and spoilers.
B. Repair indexes are incorporated in each respective section for the specific components.
C. Allowable damage limits for each component are given in each respective section.
D. Type of Construction
   (1) The wing is a fully cantilevered single unit consisting of the leading edge, wing box section, ailerons, flaps, spoilers, and tip tanks or winglets. The multicellular-type wing structure consists of spars and ribs in each wing half. The upper and lower wing skins are taper-milled so the trailing edge is thinner than the leading edge. Splice plates join the wing skin halves at the aircraft centerline. The flaps, ailerons, and spoilers are constructed primarily of spars, transverse ribs, and skins. On *Model 28/29/31 Series Aircraft*, the winglets are built in two sections. The inboard section is conventional built-up construction and the outboard section is a bonded assembly consisting of aluminum skins and a full-depth aluminum honeycomb core.



Wing Repair Index
Figure 1 (Sheet 1 of 22)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2320000	Wing Assembly	–	–	–	–	–
	2420000	Wing Assembly	–	–	–	–	–
	2520000	Wing Assembly	–	–	–	–	–
	2320000	• Wing Structural Assy., LH & RH	80	–	–	–	–
	2420000	• Wing Structural Assy., LH & RH	81	–	–	–	–
	2520000	• Wing Structural Assy., LH & RH	82	–	–	–	–
1	2322044	• • Splice Instl., Spar No.1	1	–	–	–	–
	2322044	• • • Angle, Upper	1	2024-T42 Clad	0.125	F4-6	Replace
	2322044	• • • Angle, Lower	1	2024-T42 Clad	0.125	F4-6	Replace
	2322044	• • • Angle, Upper	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Angle, Lower	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Filler, Upper & Lower	1	2024-T3 Clad	0.080	F4-6	Replace
	2322044	• • • Attach Angle	1	2024-T42 Clad	0.063	F4-6	Replace
	2322044	• • • Splice Angle, Lower	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Splice Angle, Upper	1	2024-T42 Clad	0.080	F4-6	Replace
2	2322080	• • Spar Assy., No. 2 Inboard	1	–	–	–	–
	2322080	• • • Spar Cap, Lower	1	S-622	–	F4-4	Replace
	2322080	• • • Spar Cap, Upper	1	S-623	–	F4-4	Replace
	2322080	• • • Doubler (2 ea.)	1	2024-T3 Clad	0.080	F4-4	Replace
	2322080	• • • Web	1	2024-T3 Clad	0.080	F4-4	Replace
	2322080	• • • Doubler (2 ea.)	1	2024-T3 Clad	0.063	F4-4	Replace
	2322080	• • • Angle (3 ea.)	1	S512	–	F4-4	Replace
3	2322100	• • Spar Assy., No. 3 Inboard	1	–	–	–	–
	2322100	• • • Spar Cap, Upper	1	S-527	–	–	Replace
	2322100	• • • Spar Cap, Lower	1	S-526	–	–	Replace
	2322100	• • • Doubler	1	2024-T3 Clad	0.100	–	Replace
	2322100	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2322100	• • • Angle (5 ea.)	1	S-512	–	–	Replace
	2322100	• • • Bracket	2	S-608	–	–	Replace
	2322100	• • • Cover	3	2024-T3 Clad	0.080	–	Replace
4	2322120	• • Spar Assy., No. 4 Inboard	1	–	–	–	–
	2322120	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2322120	• • • Spar Cap, Upper	1	S-525	–	–	Replace
	2322120	• • • Spar Cap, Lower	1	S-524	–	–	Replace
	2322120	• • • Doubler	1	2024-T3 Clad	0.063	–	Replace
	2322120	• • • Stiffener (7ea,)	4	S-512	–	F4-4	Replace
	2322120	• • • Stiffener (7 ea.)	5	S-571	–	F4-4	Replace
5	2322140	• • Spar Assy., No. 5 Inboard	1	–	–	–	–
	2322140	• • • Web	1	2024-T3 Clad	0.100	–	Replace
	2322140	• • • Filler	1	2024-T3 Clad	0.125	–	Replace
	2322142	• • • Spar Cap, Lower	1	S-535	–	–	Replace
	2322140	• • • Access Cover (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2322146	• • • Fitting, Forward Main Gear	1	–	–	–	51-71-00
	2322141	• • • Spar Cap, Upper	1	S-534	–	–	Replace

Wing Repair Index
Figure 1 (Sheet 2 of 22)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
6	2322203	• • Spar Assy., No. 7 Inboard	1	–	–	–	–
	2322203	• • • Web	1	2024-T3 Clad	0.100	–	Replace
	2322203	• • • Spar Cap, Upper	1	S-516	–	–	Replace
	2322203	• • • Spar Cap, Lower	1	S-517	–	–	Replace
	2322203	• • • Doubler	1	2024-T42 Clad	0.080	–	Replace
	2322203	• • • Cover (2 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2322203	• • • Doubler	1	2024-T42 Clad	0.080	–	Replace
	2322203	• • • Filler	1	2024-T3 Clad	0.160	–	Replace
	2322203	• • • Support Assy.	1	–	–	–	–
	2322203	• • • • Support, Upper	1	2024-T42 Clad	0.080	–	Replace
	2322203	• • • • Fairlead	1	Phenolic [5]	3/16	–	Replace
	2322203	• • • • Support, Clamp	1	2024-T42 Clad	0.063	–	Replace
	2322203	• • • Angle, Reinforcing (2 ea.)	1	2024-T42 Clad	0.100	–	Replace
	2322204	• • • Support, Main Gear	1	–	–	–	51-71-00
	2322207	• • • Bracket, Switch	1	2024-T3 Clad	0.063	–	Replace
	2322203	• • • Cover	1	2024-T3 Clad	0.100	–	Replace
	2322203	• • • Support Assy., Lower RH	1	–	–	–	–
	2322203	• • • • Support	1	2024-T42 Clad	0.080	–	51-71-00
	2322203	• • • • Fairlead	1	Phenolic [5]	1/8	–	Replace
	2322212	• • • • Clip	6	2024-T42	0.080	–	Replace
7	2322212	• • Spar Assy., No. 8	1	–	–	–	–
	2322212	• • • Stop	1	S-614	–	–	Replace
	2322212	• • • Cover Plate	7	2024-T3 Clad	0.100	–	Replace
	2322212	• • • Spar Web, Inboard	1	2024-T3 Clad	0.090	–	Replace
	2322212	• • • Stiffener (5ea.)	8	S-512	–	–	Replace
	2322212	• • • Stiffener	9	S-512	–	–	Replace
	2322212	• • • Stiffener (5ea.)	10	S-571	–	–	Replace
	2322212	• • • Filler	1	2024-T3 Clad	0.125	–	Replace
	2322212	• • • Plate	2	2024-T3 Clad	0.125	–	Replace
	2322212	• • • Plate	2	2024-T3 Clad	0.063	–	Replace
	2322212	• • • Doubler	1	2024-T3 Clad	0.100	–	Replace
	2322212	• • • Web, Outboard	1	2024-T3	0.084	–	Replace
	2422551	• • • Spar Cap, Upper	1	S-518	–	–	Replace
	2422551	• • • Spar Cap, Lower	1	S-519	–	–	Replace
	2322221	• • • Aft Support, Gear Act. Pin	1	2024-T4 Plate	0.063	–	51-71-00
	2322222	• • • Bearing Plate	11	2024-T4 Clad	0.250	F4-1	51-71-00
	2441007	• • • Bearing Plate	12	2024-T3 Clad	0.312	F4-1	51-71-00

Wing Repair Index
Figure 1 (Sheet 3 of 22)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
8	2622230	• • Rib Assy.	1	–	–	–	–
	2322230	• • • Stiffener (10 ea.)	1	S-512	–	–	Replace
	2322230	• • • Filler (6 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2322230	• • • Rib Cap, Upper	1	S-599	–	–	Replace
	2322230	• • • Support	1	2024-T42	0.050	–	Replace
	2322230	• • • Attach Angle	1	S-603	–	–	Replace
	2322230	• • • Rib Cap, Lower	1	S-600	–	–	Replace
	2322238	• • • Attach Angle (4 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322238	• • • Attach Angle	13	2024-T42 Clad	0.080	–	Replace
	2327014	• • • Bracket	1	S-520	–	–	Replace
	2627014	• • • Bracket Assy	1	–	–	–	Replace
	2627014	• • • • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2622230	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2322016	• • • Strip	1	2024-T3 Clad	0.063	–	Replace
	2322017	• • • Strip	1	2024-T3 Clad	0.063	–	Replace
	2322018	• • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2322063	• • • Strip	1	2024-T3 Clad	0.063	–	Replace
	2622230	• • • Attach Angle	1	S-603	–	–	Replace
9	2322293	• • Rib Assy	1	–	–	–	–
	2322293	• • • Web	1	2024-T3 Clad	0.063	–	Replace
	2322293	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2322293	• • • Rib Cap, Upper	1	S-502	–	–	Replace
	2322293	• • • Rib Cap, Lower	1	S-502	–	–	Replace
	2322293	• • • Attach Angle (4 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322293	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2322293	• • • Stiffener	1	S-512	–	–	Replace
10	2322290	• • Rib Segment Assy	1	–	–	–	–
	2322290	• • • Tee (2 ea.)	1	S-596	–	–	Replace
	2322290	• • • Web	1	2024-T42 Clad	0.100	–	Replace
	2322290	• • • Gusset	1	2024-T3 Clad	0.063	–	Replace
	2322290	• • • Stiffener	1	S-571	–	–	Replace
	2322290	• • • Tee	1	S-569	–	–	Replace
	2322290	• • Rib Segment Assy	1	–	–	–	–
	2322290	• • • Tee (2 ea.)	1	S-596	–	–	Replace
	2322290	• • • Web	1	2024-T42 Clad	0.100	–	Replace
	2322290	• • • Angle	1	2024-T42 Clad	0.100	–	Replace
	2322290	• • • Stiffener	1	S-571	–	–	Replace
	2322290	• • Rib Segment Assy	1	–	–	–	–
	2322290	• • • Tee	1	S-596	–	–	Replace
	2322290	• • • Tee	1	S-597	–	–	Replace
	2322290	• • • Tee	1	S-598	–	–	Replace
	2322290	• • • Filler	1	2024-T3 Clad	0.160	–	Replace

Wing Repair Index
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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422290	• • • Fairlead	14	Phenolic [5]	0.125	–	Replace
	2422549	• • • Fairlead	15	Phenolic [5]	0.125	–	Replace
	2322290	• • • Web	1	2024-T42 Clad	0.080	–	Replace
	2322290	• • • Tee	1	S-642	–	–	Replace
	2322290	• • • Fairlead	1	Phenolic [5]	0.125	–	Replace
	2322290	• • • Rib Segment Assy.	1	–	–	–	–
	2322290	• • • • Web	1	2024-T42 Clad	0.125	–	Replace
	2322290	• • • • Tee (2 ea.)	1	S-596	–	–	Replace
	2322275	• • • Fitting	1	2014-T6	–	F4-1	51-71-00
	2322281	• • • Fitting	1	2014-T6	–	F4-1	51-71-00
	2322282	• • • Fitting	1	2014-T6	–	F4-1	51-71-00
	2322287	• • • Filler	1	2025-T3 Clad	0.100	–	51-71-00
	2322291	• • • Fitting	1	2014-T6	–	F4-4	Replace
	2322292	• • • Fitting	1	2014-T6	–	F4-4	Replace
11	2322320	• • Rib Assy., WS 53.04	1	–	–	–	–
	2322320	• • • Filler (5 ea.)	1	2024-T3 Clad	0.160	–	Replace
	2322320	• • • Filler	1	2024-T3 Clad	0.125	–	Replace
	2322320	• • • Spar Tie Angle (12 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322320	• • • Fairlead	1	Phenolic [5]	3/16	–	Replace
	2322320	• • • Web, Forward	1	2024-T3 Clad	0.080	–	Replace
	2322321	• • • Rib Cap, Upper	1	S-592	–	–	Replace
	2322321	• • • Rib Cap, Lower	1	S-592	–	–	Replace
	2322322	• • • Bracket	1	6061-T6 Clad	0.063	–	Replace
	2422549	• • • Fairlead (2 ea.)	1	Phenolic [5]	0.125	–	Replace
	2322320	• • • Stiffener (2 ea.)	1	S-571	–	–	Replace
	2322320	• • • Web	1	2024-T3 Clad	0.160	–	Replace
12	2322330	• • Rib Instl., WS 92.52	1	–	–	–	–
	2322330	• • • Fairlead	1	Phenolic [5]	0.188	–	Replace
	2322330	• • • Angle (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Rib Segment (7 ea.)	1	2024-T42 Clad	0.071	–	Replace
13	2322340	• • Rib Instl., WS 125.00	1	–	–	–	–
	2322340	• • • Angle	16	2024-T42 Clad	0.071	F4-4	Replace
	2322340	• • • Angle (2 ea.)	1	2024-T42 Clad	0.071	F4-4	Replace
	2322340	• • • Rib Segment (7 ea.)	1	2024-T42 Clad	0.071	F4-4	Replace
	2322330	• • • Fairlead	1	Phenolic [5]	0.188	–	Replace
	S-150-1	• • • Bracket	1	–	–	–	Replace
14	2322350	• • Rib Instl., WS 157.48	1	–	–	–	–
	2322350	• • • Rib Segment (3 ea.)	1	2024-T42 Clad	0.080	F4-4	Replace
	2322350	• • • Angle	17	2024-T42 Clad	0.071	F4-4	Replace
	2322350	• • • Angle	18	2024-T42 Clad	0.071	F4-4	Replace
	2322350	• • • Angle (2 ea.)	1	2024-T42 Clad	0.071	F4-4	Replace
	2322350	• • • Rib Segment (4 ea.)	1	2024-T42 Clad	0.063	F4-4	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	2322070	• • Spar Assy., No. 1 Outboard	16	–	–	–	–
	2322070	• • • Spar Cap, Upper	19	S-594	–	F4-4	Replace
	2322070	• • • Spar Cap, Upper	20	S-618	–	F4-4	Replace
	2322070	• • • Spar Cap, Lower	19	S-594	–	F4-4	Replace
	2322070	• • • Spar Cap, Lower	20	S-619	–	F4-4	Replace
	2322070	• • • Web Plate	16	2024-T3 Clad	0.080	F4-4	Replace
	2322070	• • • Angle (8 ea.)	16	2024-T4 Clad	–	F4-4	Replace
	2322070	• • • Angle	16	2024-T42 Clad	0.064	F4-4	Replace
	2322070	• • • Filler	16	2024-T3 Clad	–	F4-4	Replace
	2322073	• • • Connecting Angle	16	2024-T42 Clad	–	–	Replace
	2322073	• • • Connecting Angle	16	2024-T42 Clad	–	–	Replace
	2322250	• • Spar Assy., No. 1 Outboard	21	–	–	–	–
	2322250	• • • Channel	21	7075-0 Clad	0.080	F4-4	Replace
	2322250	• • • Angle	21	2024-T42 Clad	0.080	F4-4	Replace
	2322070	• • • Attach Angle	21	2024-T42 Clad	0.064	F4-4	Replace
	2322257	• • • Stiffener (6 ea.)	21	S-571	–	–	Replace
	2322564	• • Spar Assy., No. 1 Outboard	22	–	–	–	–
	2322564	• • • Spar	24	7075-T6 Clad	0.080	F4-4	Replace
	2322564	• • • Spar	25	2024-T3 Clad	0.080	F4-4	Replace
	2322264	• • • Angle	22	2024-T42 Clad	0.064	F4-1	Replace
	2322264	• • • Angle	22	2024-T42 Clad	0.080	F4-1	Replace
	2322250	• • • Angle	22	2024-T42 Clad	0.080	F4-1	Replace
	2322264	• • • Bracket Assy.	23	–	–	–	Replace
	2322264	• • • Bracket	2	2024-T42 Clad	0.063	F4-1	Replace
	2322264	• • • Bracket, Inbd & Outbd	2	S-633	–	F4-1	Replace
	2322257	• • • Stiffener (12 ea.)	22	S-571	–	–	Replace
	2322264	• • • Doubler (2 ea.)	26	2024-T3	0.080	–	Replace
16	2322090	• • Spar Assy., No. 2 Outboard	16	–	–	–	–
	2322090	• • • Web Plate	16	2024-T3 Clad	0.050	F4-4	Replace
	2322090	• • • Angle	16	2024-T4 Clad	0.050	F4-4	Replace
	2322090	• • • Plate	16	2024-T3 Clad	0.050	F4-4	Replace
	2322090	• • • Angle	16	2024-T6 Clad	0.050	F4-4	Replace
	2322090	• • • Attach Angle	16	2024-T42 Clad	0.050	F4-4	Replace
	2322251	• • Spar Assy., No. 2 Outboard	21	–	–	–	–
	2322251	• • • Spar Web	24	7075-T6 Clad	–	F4-4	Replace
	2322251	• • • Spar Web	25	2024-T3 Clad	0.080	F4-4	Replace
	2322251	• • • Angle	21	2024-T42 Clad	0.080	F4-4	Replace
	2322090	• • • Stiffener	21	S-512	–	–	Replace
	2322090	• • • Attach Angle	29	2024-T42 Clad	0.050	F4-4	Replace
	2322251	• • • Attach Angle	30	2024-T42 Clad	0.050	F4-4	Replace
	2322257	• • • Stiffener (4 ea.)	21	S-571	–	–	Replace
	2322258	• • • Doubler Plate	21	2024-T42 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322565	• • Spar Assy., No. 2 Outboard	22	–	–	–	–
	2322565	• • • Spar Web	24	7075-T6 Clad	0.080	F4-4	Replace
	2322565	• • • Spar Web	25	2024-T3 Clad	0.080	F4-4	Replace
	2322565	• • • Angle	22	2024-T42 Clad	0.080	F4-4	Replace
	2322251	• • • Stiffener	27	S-512	–	–	Replace
	2322257	• • • Stiffener	28	S-512	–	–	Replace
	2322251	• • • Attach Angle	22	2024-T42 Clad	0.050	F4-4	Replace
	2322257	• • • Stiffener (4 ea.)	22	S-571	–	–	Replace
	2322258	• • • Doubler Plate (9 ea.)	22	2024-T42 Clad	0.050	F4-4	Replace
17	2322110	• • Spar Assy., No. 3 Outboard	16	–	–	–	–
	2322110	• • • Spar Web	16	7075-T6 Clad	0.080	F4-4	Replace
	2322110	• • • Spar Cap, Upper	16	S-510	–	F4-4	Replace
	2322110	• • • Spar Cap, Lower	16	S-511	–	F4-4	Replace
	2322110	• • • Stiffener (16 ea.)	16	S-512	–	F4-4	Replace
	2622110	• • • Clip Angle	16	2024-T42 Clad	0.050	F4-4	Replace
	2322252	• • Spar Assy., No. 3 Outboard	21	–	–	–	–
	2322252	• • • Spar Web	21	7075-T6 Clad	0.080	F4-4	Replace
	2322252	• • • Angle	21	2024-T42 Clad	0.080	F4-4	Replace
	2322257	• • • Stiffener (8 ea.)	21	S-571	–	F4-4	Replace
	2622110	• • • Clip Angle	21	2024-T3 Clad	0.050	F4-4	Replace
	2322566	• • Spar Assy., No. 3 Outboard	22	–	–	–	–
	2322566	• • • Spar Web	24	7075-T6 Clad	0.080	F4-4	Replace
	2322566	• • • Spar Web	25	2024-T3 Clad	0.080	F4-4	Replace
	2322566	• • • Angle	22	2024-T42 Clad	0.080	F4-4	Replace
	2322257	• • • Stiffener (14 ea.)	22	S-571	–	F4-4	Replace
	2622110	• • • Clip Angle	24	2024-T3 Clad	0.050	F4-4	Replace
	2622388	• • • Channel (4 ea.)	25	2024-T42 Clad	0.080	F4-4	Replace
	2622388	• • • Filler	25	2024-T42 Clad	0.080	F4-4	Replace
	2622388	• • • Filler	25	2024-T42 Clad	0.100	F4-4	Replace
	2622376	• • • Angle Assy., Spar Attach	25	–	–	–	Replace
	2622376	• • • • Angle	25	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	25	2024-T3 Clad	0.090	–	Replace
18	2322130	• • Spar Assy., No. 4 Outboard	16	–	–	–	–
	2322130	• • • Spar Web	16	2024-T3 Clad	0.080	F4-4	Replace
	2322130	• • • Spar Cap, Upper	16	S-513	–	F4-4	Replace
	2322130	• • • Spar Cap, Lower	16	S-548	–	F4-4	Replace
	2322130	• • • Stiffener	16	S-512	–	F4-4	Replace
	2322130	• • • Attach Angle	16	2024-T42 Clad	0.050	F4-4	Replace
	2322253	• • Spar Assy., No. 4 Outboard	21	–	–	–	–
	2322253	• • • Channel	21	7075-T6	–	–	Replace
	2322253	• • • Attach Angle	21	2024-T42 Clad	0.050	F4-4	Replace
	2322253	• • • Angle	21	2024-T42 Clad	0.080	F4-4	Replace
	2322253	• • • Stiffener (9 ea.)	21	S-571	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322567	• • Spar Assy., No. 4 Outboard	22	–	–	–	–
	2322567	• • • Channel	24	7075-T6	0.080	F4-4	Replace
	2322567	• • • Channel	25	2024-T42	0.050	F4-4	Replace
	2322567	• • • Attach Angle	22	2024-T42 Clad	0.050	F4-4	Replace
	2322567	• • • Angle	22	2024-T42 Clad	0.050	F4-4	Replace
	2322567	• • • Stiffener (15 ea.)	22	S-571	–	–	Replace
19	2322160	• • Spar Assy., No. 5 Outboard	16	–	–	–	–
	2322160	• • • Web	16	2024-T42	0.080	F4-4	Replace
	2322160	• • • Spar Cap, Upper	16	S-511	–	F4-4	Replace
	2322160	• • • Spar Cap, Lower	16	S-548	–	F4-4	Replace
	2322160	• • • Stiffener (9 ea.)	16	S-571	–	F4-4	Replace
	2322160	• • • Attach Angle	16	2024-T42 Clad	0.050	F4-4	Replace
	2322254	• • Spar Assy., No. 5 Outboard	21	–	–	–	–
	2322254	• • • Channel	21	7075-T6	0.080	F4-4	Replace
	2322254	• • • Angle	21	2024-T42 Clad	0.080	F4-4	Replace
	2322254	• • • Stiffener (9 ea.)	21	S-571	–	–	Replace
	2322254	• • • Angle Angle	21	2024-T42 Clad	0.050	F4-4	Replace
	2322568	• • Spar Assy., No. 5 Outboard	22	–	–	–	–
	2322568	• • • Spar	24	7075-T6 Clad	0.080	F4-4	Replace
	2322568	• • • Spar	25	2024-T3 Clad	0.080	F4-4	Replace
	2322160	• • • Attach Angle	22	2024-T42 Clad	0.050	F4-4	Replace
	2322568	• • • Angle	22	2024-T42 Clad	0.080	F4-4	Replace
	2322567	• • • Stiffener (15 ea.)	22	S-571	–	–	Replace
	2322568	• • • Shim, Laminated (Max. 0.020)	25	[2]	0.003	F4-4	Replace
	2322568	• • • Doubler	28	2024-T3 Clad	0.050	F4-4	Replace
20	2322170	• • Spar Assy., No. 6 Outboard	16	–	–	–	–
	2322170	• • • Web	16	2024-T42	0.080	F4-4	Replace
	2322170	• • • Spar Cap, Upper	16	S-514	–	F4-4	Replace
	2322170	• • • Spar Cap, Lower	16	S-515	–	F4-4	Replace
	2322170	• • • Stiffener (16 ea.)	16	S-512	–	F4-4	Replace
	2322255	• • Spar Assy., No. 6 Outboard	21	–	–	–	–
	2322255	• • • Channel	21	7075-T6	0.080	F4-4	Replace
	2322257	• • • Stiffener (9 ea.)	21	S-571	–	–	Replace
	2322170	• • • Attach Angle	21	2024-T42 Clad	0.050	F4-4	Replace
	2322569	• • Spar Assy., No. 6 Outboard	22	–	–	–	–
	2322170	• • • Attach Angle	31	2024-T42 Clad	0.050	F4-4	Replace
	2322569	• • • Attach Angle	32	2024-T42 Clad	0.050	F4-4	Replace
	2322569	• • • Spar	24	7075-T6 Clad	0.080	F4-4	Replace
	2322569	• • • Spar	25	2024-T3 Clad	0.080	F4-4	Replace
	2322257	• • • Stiffener	27	S-571	–	–	Replace
	2322388	• • • Doubler Pate	33	2024-T42 Clad	0.050	F4-4	Replace
	2322032	• • • Doubler	28	2024-T42 Clad	0.090	F4-4	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
21	2322205	• • Spar Assy., No. 7 Outboard	16	–	–	–	–
	2322205	• • • Spar Web	16	2024-T42 Clad	0.080	F4-4	Replace
	2322205	• • • Spar Cap, Upper	16	S-531	–	F4-4	Replace
	2322205	• • • Spar Cap, Lower	16	S-530	–	F4-4	Replace
	2322205	• • • Stiffener (15 ea.)	16	S-512	–	F4-4	Replace
	2322205	• • • Attach Angle	16	2024-T42 Clad	0.050	F4-4	Replace
	2327001	• • • Bracket	16	2024-T42/QQ-A-267	0.060	F4-4	Replace
	2322205	• • • Plate	16	2024-T42	0.071	F4-4	Replace
	2322556	• • Spar Assy., No. 7 Outboard	21	–	–	–	–
	2322556	• • • Channel	21	7075-T6 Clad	0.080	F4-4	Replace
	2322170	• • • Attach Angle	21	2024-T42 Clad	0.050	F4-4	Replace
	2322567	• • • Stiffener (9 ea.)	21	S-571	–	–	Replace
	2327001	• • • Clip	21	2024-T42/QQ-A-267	–	–	Replace
	2322256	• • • Angle	21	2024-T3 Clad	0.050	F4-4	Replace
	2322570	• • Spar Assy., No. 7 Outboard	22	–	–	–	–
	2322570	• • • Spar	24	7075-T6 Clad	0.080	F4-4	Replace
	2322570	• • • Spar	25	2024-T3 Clad	0.080	F4-4	Replace
	2322256	• • • Angle	22	2024-T42 Clad	0.050	F4-4	Replace
	2327001	• • • Clip	22	2024-T42/QQ-A-267	–	–	Replace
	2322567	• • • Stiffener (13 ea.)	22	S-571	–	–	Replace
	2322371	• • Rib Instl., WS 181.10	16	–	–	–	–
22	2322371	• • • Web Assy.	16	–	–	–	Replace
	2322371	• • • • Web	16	2024-T3 Clad	0.080	–	Replace
	2322371	• • • Rib Cap Assy.	16	–	–	–	Replace
	2322371	• • • • Rib Cap, Upper	16	S-787 (T42)	–	–	Replace
	2322371	• • • • Rib Cap, Lower	16	S-787 (T42)	–	–	Replace
	2322371	• • • Ring, Clamping (2 ea.)	16	2024-T3 Clad	0.125	–	Replace
	2322371	• • • Filler (2 ea.)	16	2024-T3 Clad	0.125	–	Replace
	2322373	• • • Fitting Assy., Aft	16	–	–	–	Replace
	2322373	• • • Fitting	16	2014-T6 Clad	1.800	–	Replace
	2322372	• • • Fitting Assy., Fwd	16	–	–	–	Replace
	2322372	• • • Fitting	16	2014-T6 Clad	1.800	–	Replace
	2322374	• • Rib Instl., WS 181.10	17	–	–	–	–
	2322374	• • • Web Assy.	17	–	–	–	Replace
	2322374	• • • • Web	17	2024-T3 Clad	0.080	–	Replace
	2322374	• • • Rib Cap Assy	17	–	–	–	Replace
	2322374	• • • • Rib Cap, Upper	17	S-787 (T42)	–	–	Replace
	2322374	• • • • Rib Cap, Lower	17	S-787 (T42)	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322371	• • • Clamping Ring (2 ea.)	17	2024-T3 Clad	0.125	–	Replace
	2322374	• • • Filler	17	2024-T3 Clad	0.125	–	Replace
	2322373	• • • *Fitting Assy., Aft*	17	–	–	–	*Replace*
	2322373	• • • Fitting	17	2014-T6 Clad	1.800	–	Replace
	2322372	• • • Fitting Assy., Fwd	17	–	–	–	Replace
	2322372	• • • Fitting	17	2014-T6 Clad	1.800	–	Replace
	2322371	• • • Ring Clamping (2 ea.)	34	2024-T3 Clad	0.160	–	Replace
	2325079	• • Support Instl., Flap Actuator	1	–	–	–	–
23	2325079	• • • Bracket Assy.	1	–	–	–	–
	2325079	• • • • *Brace, Bracket End*	78	S-534	–	F4-1	*Replace*
	2325079	• • • • Brace, Bracket End	79	S-5088	–	F4-1	Replace
	2325079	• • • • Fitting, Cylinder Attach (2 ea.)	1	2024-T3 Clad	0.160	F4-1	51-70-00
	2325079	• • • • Bracket Support, Upper	1	2024-T42 Clad	0.063	F4-1	Replace
	2325079	• • • • Bracket Support, Lower	1	2024-T42 Clad	0.063	F4-1	Replace
	2322560	• • Rib Instl., Inboard Flap Track Support	1	–	–	–	–
24	2322560	• • • Rib Assy., Inner	1	–	–	–	–
	2322560	• • • • Rib, Inner	1	2024-T42 Clad	0.090	F4-1	Replace
	2322560	• • • • Fairlead, Inboard	1	Phenolic [5]	0.188	F4-1	Replace
	2322560	• • • Rib Assy., Outer	1	–	–	–	–
	2322560	• • • Rib, Outer	1	2024-T42 Clad	0.090	F4-1	Replace
	2322560	• • • Fairlead, Inboard	1	Phenolic [5]	0.188	F4-1	Replace
	2322560	• • Rib Instl., Outboard Flap Track Support	1	–	–	–	–
25	2322560	• • • Rib Assy., Inner	1	–	–	–	–
	2322560	• • • • Rib, Inner	1	2024-T42 Clad	0.063	F4-1	Replace
	2322560	• • • • Fairlead, Outboard	1	Phenolic [5]	0.188	–	Replace
	2322560	• • • Rib Assy., Outer	1	–	–	–	–
	2322560	• • • • Rib, Outer	1	2024-T42 Clad	0.063	F4-1	Replace
	2322560	• • • • Fairlead, Outboard	1	Phenolic [5]	0.188	–	Replace
	2322521	• • Rib Instl., Flap Slot Inboard Closing	1	–	–	–	–
26	2322521	• • • Rib	1	2024-T42 Clad	0.040	F4-1	Replace
	2322521	• • • Retainer	16	2024-T3	0.050	F4-1	Replace
	2322521	• • Bracket Instl., Speed Brake Act.	–	–	–	–	–
27	2322516	• • • Bracket Assy., Flap Sector Upper	1	–	–	–	–
	2322516	• • • • Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • • Angle	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • Support Bracket Assy., Outbd	1	–	–	–	–
	2322516	• • • • Support Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • • Doubler	1	2024-T3 Clad	0.063	F4-1	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322516	• • • Support Bracket Assy.	1	–	–	–	–
	2322516	• • • • Support Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • • Plate	1	2024-T42 Clad	0.063	F4-1	Replace
	2522516	• • • Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • Fairlead	1	Phenolic [5]	3/16	–	Replace
	2322516	• • • Support Bracket Assy., Inbd	1	–	–	–	–
	2322516	• • • • Support Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • Doubler	1	2024-T42	0.080	F4-1	Replace
	2322516	• • • Door	1	2024-T42	0.090	F14-1int F1 ext	Replace
	2322516	• • • Splice Plate (LH Only)	36	2024-T3	0.080	F4-4	Replace
	2322516	• • • Splice Plate (RH Only)	1	2024-T3	0.080	F4-4	Replace
	2322516	• • • Doubler (LH Only)	37	2024-T3	0.080	F4-4	Replace
	2322516	• • • Bracket Assy., Support	1	–	–	–	–
	2322516	• • • • Bracket, Track Support	1	2024-T42 Clad	0.063	F4-1	Replace
	2322516	• • • Plate	1	2024-T3	0.050	F4-1	Replace
	2322516	• • • Roller Track	1	2024-T4	–	–	Replace
	2322516	• • • Bracket, Switch	1	4130 [3]	0.050	–	Replace
	2322526	• • • Lever Assy., Switch Actuator	1	–	–	–	–
	2322516	• • • • Weld Assy.	1	–	–	–	–
	2322516	• • • • • Lever	1	4130 [3]	0.050	F4-1	Replace
	2322516	• • • • • Stiffener	1	4130 [3]	0.050	F8-1	Replace
	2322516	• • • Plate	38	2024-T3 Clad	0.063	F4-1	Replace
	2322516	• • • Gussett	39	2024-0 Clad	0.063	F4-1	Replace
	2422513	• • • Fitting Assy.	1	–	–	–	–
	2422513	• • • • Fitting	1	S-355	–	–	Replace
	2422513	• • • • Bushing	1	NAS77-4-06	–	–	Replace
	2322513	• • • Support Bracket	39	2024-0 Clad	0.063	F4-1	Replace
	2322513	• • • Support Angle	39	2024-0	0.063	F4-1	Replace
	2322530	• • Bracket Instl., Aileron Hinge	–	–	–	–	–
28	2322530	• • • Hinge Bracket Assy., Middle	1	–	–	–	51-71-00
	2322530	• • • • Stud	35	Hex Rod [3]	7/16	–	Replace
	2322530	• • • • Hinge Bracket, Middle Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Hinge Bracket, Middle Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Angle	1	S-549	–	–	Replace
	2322530	• • • • Plate	1	2024-T3 Clad	0.090	–	Replace
	2322530	• • • • Hinge Arm, Middle	1	2024-T4	0.375	–	51-71-00
	2322530	• • • Hinge Bracket Assy., Outbd	1	–	–	–	51-71-00
	2322530	• • • • Hinge Bracket, Outbd Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Hinge Bracket, Outbd Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Arm, Hinge	1	2024-T4	–	–	51-71-00

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322530	• • • Hinge Bracket Assy., Inboard	1	–	–	–	51-71-00
	2322530	• • • • Hinge Bracket, Inbd, Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Hinge Bracket, Inbd, Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Arm, Hinge	1	2024-T4 Plate	–	–	51-71-00
	2322550	• • Gap Closure Instl.	1	–	–	–	–
29	2322550	• • • Rib Assy.	1	–	–	–	–
	2322550	• • • • Rib	1	2024-T42 Clad	0.050	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Angle, Panel Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2322550	• • • Door	1	2024-T3 Clad	0.090	–	Replace
	2322550	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2322010	• • Wing Skin Instl., Upper	16	–	–	–	–
30	2322011	• • • Wing Skin	16	2014-T6	0.128	F4-4	Replace
	2322012	• • • Doubler	16	2014-T6	0.080	F4-4	Replace
	2322013	• • • Joint Sheet	16	2024-T6	0.080	F4-4	Replace
	2322025	• • • Angle	16	S548	–	F4-4	Replace
	2322026	• • • Angle	16	S548	–	F4-4	Replace
	2322042	• • • Filler	16	2024-T3	0.080	F4-4	Replace
	2322278	• • • Fitting	16	2014-T6	0.080	F4-4	Replace
	2327009	• • • Support	16	S596	–	–	Replace
	2322010	• • • Angle Support	40	S612	–	–	Replace
	2322010	• • Wing Skin Instl., Upper	17	–	–	–	–
	2322010	• • • Support	17	S612	–	–	Replace
	2322028	• • • Wing Skin, Upper	17	2014-T6	0.250	F4-6ext F4-4int	Replace
	2322013	• • • Joint Sheet, Fwd	17	2024-T6	0.080	F4-6	Replace
	2322013	• • • Joint Sheet, Aft	17	2024-T6	0.080	F4-6	Replace
	2322025	• • • Angle, Fwd	17	S548	–	F4-4	Replace
	2322026	• • • Angle, Aft	17	S548	–	F4-4	Replace
	2322042	• • • Filler	17	2024-T3	0.080	F4-4	Replace
	2322278	• • • Fitting	17	2014-T6	0.080	F4-4	Replace
	2327038	• • • • Bracket Assy.	41	–	–	–	–
	2327038	• • • • • Bracket	41	2024-T42	0.063	–	Replace
	2325075	• • • • Bracket Assy.	42	–	–	–	–
	2325075	• • • • • Bracket	42	2024-T42 Clad	0.050	–	Replace
	2327038	• • • • Bracket Assy.	43	–	–	–	–
	2327038	• • • • • Bracket	43	2024-T42	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2622030	• • Wing Skin Instl., Lower	16	–	–	–	–
31	2322031	• • • Wing Skin [4]	16	2024-T3	0.180	F4 ext F4-4int	Replace
	2322032	• • • Stiffener, Lower	16	2024-T3	0.080	–	Replace
	2322033	• • • Joint Sheet	16	2024-T3 Clad	0.080	F4-6	Replace
	2322033	• • • Joint Sheet	16	2024-T3 Clad	0.080	F4-4	Replace
	2322042	• • • Filler	16	2024-T3 Clad	0.080	F4-4	Replace
	2322230	• • • Doubler Assy. (2 ea.)	16	–	–	–	–
	2322230	• • • • Doubler, Inner	16	2024-T3 Clad	0.090	F4-4	Replace
	2322030	• • • Door, Access	16	2024-T3 Clad	0.090	F4-4	Replace
	2322030	• • • Stiffener (2 ea.)	16	S548	–	–	Replace
	2322030	• • • Cover Plate	57	2024-T3 Clad	0.080	F4-4	Replace
	2322030	• • • Access Door Assy.	16	–	–	–	Replace
	2322030	• • • • Access Door	16	2024-T3	0.090	F4-4	Replace
	2322030	• • • Spacer	16	2024-T3	0.125	F4-4	Replace
	2322259	• • • Door Assy.	16	–	–	–	Replace
	2322031	• • • • Door	16	2024-T3	0.080	F4-6 ext F4-4int	Replace
	2326015	• • • • Bracket	16	2024-T3	0.050	–	Replace
	2322064	• • • Door Instl., Wing Access	58	–	–	–	–
	2322064	• • • • Door Assy.	58	–	–	–	–
	2322064	• • • • • Door	58	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Doubler	58	2024-T3	0.090	F4-4	Replace
	2322064	• • • • Door Assy.	16	–	–	–	–
	2322064	• • • • • Door	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Doubler	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • Door Assy.	16	–	–	–	–
	2322064	• • • • • Door	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Doubler	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Spacer	16	2024-T3	0.080	F4-4	Replace
	2322064	• • • • Door Assy.	16	–	–	–	–
	2322064	• • • • • Door	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Doubler	58	2024-T3	0.090	F4-4	Replace
	S160-1	• • • • • Doubler	59	2024-T3	0.080	F4-4	Replace
	2322064	• • • • Door (2 ea.)	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • Doubler (2 ea.)	16	2024-T3	0.090	F4-4	Replace
	2322064	• • • • Spacer (6 ea.)	58	2024-T3	0.080	F4-4	Replace
	2322064	• • • • Spacer	59	2024-T3	0.080	F4-4	Replace
	157-3	• • • • Door Assy.	59	–	–	–	–
	2322064	• • • • • Door	59	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Spacer	59	2024-T3	0.080	F4-4	Replace
	157-1	• • • • • Doubler	59	2024-T42	0.090	F4-4	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	157-5	• • • • Door Assy.	59	–	–	–	–
	2322064	• • • • • Door	59	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Spacer (2 ea.)	59	2024-T3	0.080	F4-4	Replace
	157-7	• • • • • Doubler	59	2024-T42	0.090	F4-4	Replace
	2322064	• • • • Door Assy.	58	–	–	–	–
	2322064	• • • • • Door	58	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Spacer	58	2024-T3	0.090	F4-4	Replace
	2322064	• • • • • Doubler (2 ea.)	58	2024-T3	0.090	F4-4	Replace
	2622030	• • Wing Skin Instl., Lower	17	–	–	–	–
	2322029	• • • Wing Skin 4	44	2024-T3	0.180	F4-6ext F4-4int	Replace
I	2322029	• • • Wing Skin 4	45	2024-T3	0.178	F4 ext F4-4int	Replace
	2322030	• • • Spacer	46	2024-T3 Clad	0.125	–	Replace
	2322042	• • • Filler	17	2024-T3 Clad	0.080	F4-4	Replace
	2322261	• • • Doubler Instl., Lower Fwd	17	–	–	–	–
	2322261	• • • • Doubler, Inner	17	2024-T3 Clad	0.090	F4-4	Replace
	2322033	• • • • Joint Sheet	17	2024-T3 Clad	0.080	F4-6	Replace
	2322562	• • • Doubler Instl., Lower Aft	17	–	–	–	–
	2322562	• • • • Doubler	17	2024-T3 Clad	0.080	F4-1	Replace
	2322259	• • • Door Instl., Wing Access	47	–	–	–	–
	2322259	• • • • Door	47	2024-T3 Clad	0.080	F1 int F14-1ext	Replace
	2326015	• • • • Bracket	47	2024-T42	0.050	F4-1	Replace
	2422110	• • • Door Assy. Instl.	48	–	–	–	–
	2422110	• • • • Door Assy.	48	–	–	–	–
	2422111	• • • • • Boss, Fuel Probe	48	2024-T4	–	F3	Replace
	2326015	• • • • • *Bracket*	*48*	*2024-T42*	*0.050*	–	Replace
	2422112	• • • • • Door Assy.	48	–	–	–	–
	2422112	• • • • • • Door	48	2024-T3	0.125	F4-4	Replace
	2422112	• • • • • • Plate	48	2024-T4	0.375	F4-4	Replace
	2422114	• • • Door Assy. Instl.	49	–	–	–	–
	2422114	• • • • Door Assy.	49	–	–	–	–
	2422113	• • • • • Door	49	2024-T3	0.160	F4-4	Replace
	2326015	• • • • • Bracket	49	2024-T42	0.050	F4-4	Replace
	2322259	• • • • Door Assy.	44	–	–	–	–
	2322259	• • • • • Door	44	2024-T3 Clad	0.080	F4-4	Replace
	2326015	• • • • • Bracket	44	2024-T42	0.050	F4-4	Replace
	2322259	• • • • Door Assy.	44	–	–	–	–
	2322259	• • • • • Door	44	2024-T3 Clad	0.090	F4-4	Replace
	2322259	• • • • Door Assy. (5 ea.)	50	–	–	–	–
	2322259	• • • • • Door	50	2024-T3 Clad	0.080	–	Replace
	2322259	• • • • Door	51	2024-T3 Clad	0.080	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322259	• • • • Door Assy.	52	–	–	–	–
	2322259	• • • • • Door	52	2024-T3 Clad	0.080	–	Replace
	2322259	• • • • Door (6 ea.)	53	2024-T3 Clad	0.080	–	Replace
	2322259	• • • • Door	54	2024-T3 Clad	0.080	–	Replace
	2322259	• • • • Door Assy.	55	–	–	–	–
	2422102	• • • • • Seal	55	Nylon 101	–	–	Replace
	2622386	• • • Cover Instl., Access Holes	56	–	–	–	–
	2622386	• • • • Filler	56	2024-T3	0.190	–	Replace
	2326015	• • • • Bracket, Fuel Probe Sprt.	56	2024-T42 Clad	0.050	–	Replace
	2422114	• • • • Door Instl., Wing Fuel Probe	56	–	–	–	–
	2422114	• • • • • Door Assy.	56	–	–	–	–
	2422113	• • • • • • Door	56	2024-T3 Clad	0.160	–	Replace
	2326015	• • • • • • Bracket	56	2024-T42 Clad	0.050	–	Replace
	2622387	• • • • Cover, Access Hole	56	2024-T3 Clad	0.080	–	Replace
	2322259	• • • • Door (6 ea.)	56	2024-T3 Clad	0.080	–	Replace
	2622387	• • • • Cover, Access Hole (5 ea.)	56	2024-T3 Clad	0.080	–	Replace
	2622389	• • • • Cover, Access Hole	56	2024-T3	0.090	–	Replace
	2322140	• • • Shim, Laminated (0.032)	56	(2)	0.003	–	Replace
	2622016	• • • Splice Instl.	56	–	–	–	–
	2622017	• • • • Splice, Fwd, Lower Wing Skin	56	2024-T4	0.312	–	Replace
	2622018	• • • • Splice, Aft, Lower Wing Skin	56	2024-T4	0.160	–	Replace
	2622015	• • • Stiffener Assy.	56	–	–	–	–
	2622015	• • • • Stiffener	56	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	56	2024-T42 Clad	0.063	–	Replace
	2622015	• • • Stiffener Assy.	56	–	–	–	–
	2622015	• • • • Stiffener	56	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	56	2024-T42 Clad	0.063	–	Replace
	2622015	• • • Stiffener Assy.	56	–	–	–	–
	2622015	• • • • Stiffener	56	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	56	2024-T42 Clad	0.063	–	Replace
	2622015	• • • Stiffener Assy.	56	–	–	–	–
	2622015	• • • • Stiffener	56	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	56	2024-T42 Clad	0.063	–	Replace
	2622376	• • Leading Edge Instl.	19	–	–	–	–

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
32	2322376	• • • • Skin Inbd	19	2024-T42 Clad	–	F5-4int F5 ext	Replace
	2322376	• • • • Skin, Middle	19	No.181 Fiberglass	6 Ply	–	Replace
	2322376	• • • • Skin Outbd	19	No.181 Fiberglass	6 Ply	–	Replace
	2322376	• • • Cover, Outbd Access	19	No.181 Fiberglass	6 Ply	–	Replace
	2322376	• • • Filler	19	2024-T3 Clad	0.028	F4-4	Replace
	2322416	• • • Attach Rib	19	2024-T42	0.050	F4-4	Replace
	2322417	• • • Nose Rib, Sta 108.66	19	2024-T42	0.050	F4-4	Replace
	2322418	• • • Nose Rib, Sta 181.275	19	2024-T42	0.050	F4-4	Replace
	2622377	• • Leading Edge Instl.	61	–	–	–	–
	2322377	• • • Skin, Inbd	61	2024-T42 Clad	0.063	–	Replace
	2322377	• • • Skin, Middle	61	6061-0	0.063	-	Replace
	2322377	• • • Skin, Outbd	61	6061-0	0.063	–	Replace
	2322377	• • • Panel, Access	61	6061-0	0.063	–	Replace
	2322377	• • • Filler, Lower (2 ea.)	60	2024-T3	0.100	–	Replace
	2322377	• • • Filler, Upper	60	6061-0	0.160	–	Replace
	2322377	• • • Filler, Upper	60	2024-T3 Clad	0.125	–	Replace
	2322377	• • • Filler, Lower	60	2024-T3 Clad	0.025	–	Replace
	2322377	• • • Filler, Upper	60	2024-T3 Clad	0.050	–	Replace
	2322377	• • • Filler, Upper	60	2024-T3 Clad	0.028	–	Replace
	2322377	• • • Filler, Upper	60	6061-0	0.050	–	Replace
	2322377	• • • Filler, Upper	60	6061-0	0.032	–	Replace
	2322416	• • • Attach Rib	61	2024-T42	0.050	F4-4	Replace
	2322417	• • • Nose Rib, Sta 108.66	61	2024-T42	0.050	F4-4	Replace
	2322418	• • • Nose Rib, Sta 181.275	61	2024-T42	0.050	F4-4	Replace
	2522050	• • Leading Edge Instl.	62	–	–	–	–
	2522050	• • • Leading Edge Assy.	62	–	–	–	–
	2522050	• • • • *Baffle Assy.*	62	–	–	–	–
	2522050	• • • • • Baffle, Outbd	62	6061-T6	0.025	F4-1	Replace
	2522050	• • • • • Baffle, Inbd	62	6061-T6	0.025	F4-1	Replace
	2522050	• • • • • Baffle, Inbd, Auxilary	62	2024-T42	0.025	F4-1	Replace
	2522050	• • • • Splice Plate	62	2024-T41	0.063	F4-1	Replace
	2522050	• • • • Tube Assy.	62	–	–	–	–
	2522050	• • • • • Tube, Anti-Ice	62	6061-T6	0.050	–	Replace
	2522050	• • • • • Plate, Tube End	62	6061-T6	0.050	–	Replace
	2522050	• • • • Clip	62	6061-T6	0.032	F4-1	Replace
I	2322377	• • • • Panel, Access	63	6061-T6	0.063	–	Replace
	2522100	• • • Rib, Sta 168.72	2	2024-T42	0.050	F4-1	Replace
	2322416	• • • Rib Assy.	62	–	–	–	–
	2322416	• • • • Rib	62	2024-T42 Clad	0.050	F4-6	Replace
	2322416	• • • Doubler	62	2024-T3 Clad	0.050	F4-6	Replace
	2322377	• • • Skin, Middle	62	6061-0	0.063	F4-1	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322418	• • • Rib	65	2024-T42 Clad	0.050	F4-1	Replace
	2422015	• • • • Panel, Access	64	6061-T6	0.063	F1 ext F14-1int	Replace
	2322377	• • • Skin, Outbd	62	6061-T6	0.063	–	Replace
	2514304	• • • Scupper	62	6061-0	0.032	F1 ext F14-1int	Replace
	2422042	• • Leading Edge Instl.	66	–	–	–	–
33	2422030	• • • Leading Edge Assy.	66	–	–	–	–
	2422029	• • • • Skin Assy.	66	–	–	–	–
	2422029	• • • • • Skin (2 ea.)	66	6061-T6	0.063	–	Replace
	2422029	• • • • • Doubler	66	6061-T6	0.063	–	Replace
	2422031	• • • • Baffle	66	–	–	–	–
	2422031	• • • • • Baffle, Outboard	66	6061-T6	0.063	–	Replace
	2422031	• • • • • Baffle, Inboard	66	6061-T6	0.063	–	Replace
	2422032	• • • • • Rib	66	2024-T42 Clad	0.063	–	Replace
	2422032	• • • • Rib (7 ea.)	66	2024-T42 Clad	0.063	–	Replace
	2422038	• • • • Scupper	66	6061-0	0.025	–	Replace
	2422050	• • • • Anti-Ice Instl.	66	–	–	–	–
	2522050	• • • • • Tube Assy.	66	–	–	–	–
	2522050	• • • • • • Plate, Tube End	66	6061-T6	0.050	–	Replace
	2522050	• • • • • • Tube, Anti-Icing	66	6061-T42	1.000	–	Replace
	2522050	• • • • • • Tube, Anti-Icing	66	6061-T6	1.000	–	Replace
	2422083	• • • • Baffle Rib Assy.	66	–	–	–	–
	2422083	• • • • • Rib	66	2024-T42 Clad	0.050	–	Replace
	2422083	• • • • • Angle	66	6061-T6	0.032	–	Replace
	2422030	• • • • Shim	66	2024-T3	0.063	–	Replace
	2422030	• • • • Shim	66	2024-T3 Clad	0.025	–	Replace
	2422039	• • • Fairing Assy.	66	–	–	–	–
	2422039	• • • • Splice Assy.	66	–	–	–	–
	2422039	• • • • • Splice	66	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Fairing	66	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • Doubler (2 ea.)	66	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Splice	66	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Doubler	66	2024-T3 Clad	0.040	–	Replace
	2422036	• • • • Stiffener (2 ea.)	66	S-699	–	–	Replace
	2422039	• • • • Fairing	66	2024-T3 Clad	0.063	–	Replace
	2422041	• • • Support Assy.	66	–	–	–	–
	2422041	• • • • Support (2 ea.)	66	2024-T3 Clad	0.063	–	Replace
	2422043	• • • Filler	66	2024-T3	0.063	–	Replace
	2422078	• • • Splice Plate	66	2024-T42 Clad	0.063	–	Replace
	2422082	• • • Rib Assy.	66	–	–	–	–
	2422082	• • • • Rib	66	2024-T42 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422041	• • • Support Assy.	66	–	–	–	–
	2422041	• • • • Support	66	S-744	–	–	Replace
	2422041	• • • • Support	66	2024-T3 Clad	0.063	–	Replace
	2422078	• • • Rib	66	2024-T42 Clad	0.050	–	Replace
	2422089	• • Stall Strip Instl.	70	–	–	–	–
34	2422089	• • • Stall Strip	70	6061-T4	0.250	–	Replace
	2422086	• • Stall Fence Instl.	70	–	–	–	–
35	2422086	• • • Fence Assy.	70	–	–	–	–
	2422086	• • • • Fence	70	6061-T6	0.160	–	Replace
	2422086	• • • • Attach Plate	70	6061-T6	0.063	–	Replace
	2422086	• • • Fence Assy.	71	–	–	–	–
	2422086	• • • • Fence	71	6061-T6	0.160	–	Replace
	2422086	• • • • Attach Plate	71	6061-T6	0.063	–	Replace
	2422086	• • • Fence Assy.	73	–	–	–	–
	2422086	• • • • Fence	73	6061-T6	0.160	–	Replace
	2422086	• • • • Attach Plate	73	6061-T6	0.063	–	Replace
	2422086	• • • Fence	72	S-5078	–	–	Replace
	2422086	• • • Fence (3 ea.)	74	S-5078	–	–	Replace
	2622399	• • Trip Strip Instl.	70	–	–	–	–
36	2422088	• • • Trip Strips (3 ea.)	70	S-5075	–	–	Replace
	2322555	• Vortex Generator Instl.	23	–	–	–	Replace
	2322555	• • Blade, Vortex Generators	23	S-621	–	1F1	Replace
	2322571	• Vortex Generator Instl.	55	–	–	–	Replace
37	2322555	• • Blade, Vortex Generators	55	S-621	–	1F1	Replace
	2322571	• • Blade, Vortex Generators	55	S-707	–	1F1	Replace
	2422085	• Anti-Ice Instl., LH & RH	76	–	–	–	–
38	2422085	• • Insulation	76	Fiberglass matte	1/2	–	Replace
	2522050	• • Tube	76	5052-0	1/4	–	Replace
	2522050	• • Insulation	7	Fiberglass matte	1.000	–	Replace
	2522050	• • Reinforcement	76	3003-H14 Expanded	1/2 .051	–	Replace
	2422117	Drain Instl., Wing Center Section	75	–	–	–	–
39	2422117	• Clip	75	2024-T42 Clad	0.032	–	Replace
	2422116	• Drain Flange Weld Assy.	75	–	–	–	–
	2422116	• • Washer	75	5052-0	0.063	–	Replace
	2422116	• • Elbow	75	5052-0 Tubing	0.063	–	Replace
	2620000	• Identification Plate	1	S-905	–	–	Replace
	2422037	• Strake Instl., LH & RH	77	–	–	–	–
40	2422039	• • Fairing Assy.	77	–	–	–	–
	2422039	• • • Fairing	77	2024-T3	0.063	–	Replace
	2422039	• • • Doubler	77	2014-T6	0.071	–	Replace
	2422039	• • • Doubler	77	2024-T3	0.040	–	Replace
	2422036	• • • Stiffener	77	S-699	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422040	• • Strake Assy.	77	–	–	–	–
	2422040	• • • Strake (2 ea.)	77	6061-T4	0.063	–	Replace
	2422041	• • Support Assy.	77	–	–	–	Replace
	2422041	• • • Support	77	2024-T3	0.063	–	Replace
	2422041	• • • Support	78	S-744	–	–	Replace
	2422041	• • • Support	79	S-745	–	–	Replace
	2422081	• • Panel	77	6061-T6	0.063	–	Replace
	2328001	• Conduit Instl. Sta 125.0 to 181.10	1	–	–	–	–
	2328001	• • Conduit	1	5052-0 Tube	0.035	F4-4	Replace

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CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
2	25-002 THRU 25-006
3	23-002 THRU 23-029; 24-100 THRU 24-300, 24-309, 24-310; 25-007 THRU 25-185
4	23-002 THRU 23-009; 24-100 THRU 24-338
5	24-339 THRU 24-357; 25-206 THRU 25-373
6	23-002 THRU 23-099; 24-100 THRU 24-131
7	24-198 THRU 24-357; 25-032 THRU 25-373
8	23-022 THRU 23-099; 24-100 THRU 24-287; 25-002 THRU 25-155
9	23-002 AND 23-003
10	24-288 THRU 24-357; 25-156 THRU 25-373
11	23-002 THRU 23-099; 24-100 THRU 24-229; 25-002 THRU 25-069
12	24-230 THRU 24-357; 25-070 THRU 25-373
13	23-002 THRU 23-099; 24-100 THRU 24-218; 25-022 THRU 25-051
14	23-002 THRU 23-099; 24-100 THRU 24-348; 25-002 THRU 25-224
15	24-349 THRU 24-357; 25-225 THRU 25-373
16	23-002 THRU 23-039
17	23-040 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
18	25-060 THRU 25-373
19	23-002 THRU 23-005
20	23-006 THRU 23-099
21	23-040 THRU 23-099; 24-100 THRU 24-103
22	24-104 THRU 24-357; 25-002 THRU 25-373
23	23-002 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
24	24-104 THRU 24-263; 25-002 THRU 25-084
25	24-264 THRU 24-357; 25-085 THRU 25-373
26	25-296 THRU 25-373
27	24-104 THRU 24-338; 25-002 THRU 25-205
28	24-339 THRU 24-357; 25-206 THRU 25-373
29	23-040 THRU 23-072
30	23-073 THRU 23-099; 24-100 THRU 24-103
31	24-104 THRU 24-119
32	24-120 THRU 24-263
33	24-291 THRU 24-357; 25-162 THRU 25-373
34	23-070 THRU 23-099; 25-002 THRU 25-006
35	24-100 THRU 24-357; 25-002 THRU 25-373
36	23-002; 23-003; 23-005 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373
37	23-004 ONLY
38	24-190 THRU 24-357; 25-030 THRU 25-373
39	24-269 THRU 24-357; 25-115 THRU 25-373
40	23-035 THRU 23-039
41	23-080 THRU 23-089
42	23-090 THRU 23-099; 24-100 THRU 24-149
43	24-150 THRU 24-357
44	23-002 THRU 23-099; 24-100 THRU 24-285; 25-002 THRU 25-154
45	24-286 THRU 24-357 AND ALL SPARES; 25-155 THRU 25-373 AND ALL SPARES
46	23-040 THRU 23-099; 24-100 THRU 24-293; 25-002 THRU 25-166
47	23-080 THRU 23-099; 24-100 THRU 24-159; 25-002 THRU 25-010
48	24-160 THRU 24-189; 25-011 THRU 25-029
49	24-190 THRU 24-285; 25-030 THRU 25-154
50	23-040 THRU 23-099; 24-100 THRU 24-149; 25-002 THRU 25-010

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CODES	EFFECTIVITIES
51	23-090 THRU 23-099; 24-100 THRU 24-285; 25-002 THRU 25-154
52	23-070 THRU 23-079
53	24-150 THRU 24-285; 25-011 THRU 25-154
54	24-150 THRU 24-229 EXCEPT 24-218; 25-011 THRU 25-066 EXCEPT 25-061
55	24-218, 24-230 THRU 24-285; 25-061; 25-067 THRU 25-154
56	24-286 THRU 24-357; 25-155 THRU 25-373
57	23-002 THRU 23-024
58	23-002, 23-003, 23-010 THRU 23-039
59	23-004 THRU 23-009
60	23-006 THRU 23-039
61	23-006 THRU 23-099; 24-100 THRU 24-155
62	24-156 THRU 24-338; 25-002 THRU 24-205
63	24-156 THRU 24-189; 25-002 THRU 25-029
64	24-190 THRU 24-229 EXCEPT 24-218; 25-030 THRU 25-066 EXCEPT 25-061
65	25-007 THRU 25-205
66	24-339 THRU 24-357; 25-206 THRU 25-373
67	DELETED
68	DELETED
69	DELETED
70	25-290 THRU 25-373
71	25-290 THRU 25-307
72	25-308 THRU 25-312
73	25-290 THRU 25-307
74	25-313 THRU 25-373
75	24-238 THRU 24-357; 25-070 THRU 25-373
76	24-329 THRU 24-357; 25-002 THRU 25-373
77	24-230 THRU 24-357; 25-206 THRU 25-373
78	24-230 THRU 24-333; 25-206 THRU 25-373
79	24-334 THRU 24-357; 25-208 THRU 25-373
80	23-002 THRU 23-099
81	24-100 THRU 24-357
82	25-002 THRU 25-373

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NOTES

1. Conductive Coating per Chapter 51.

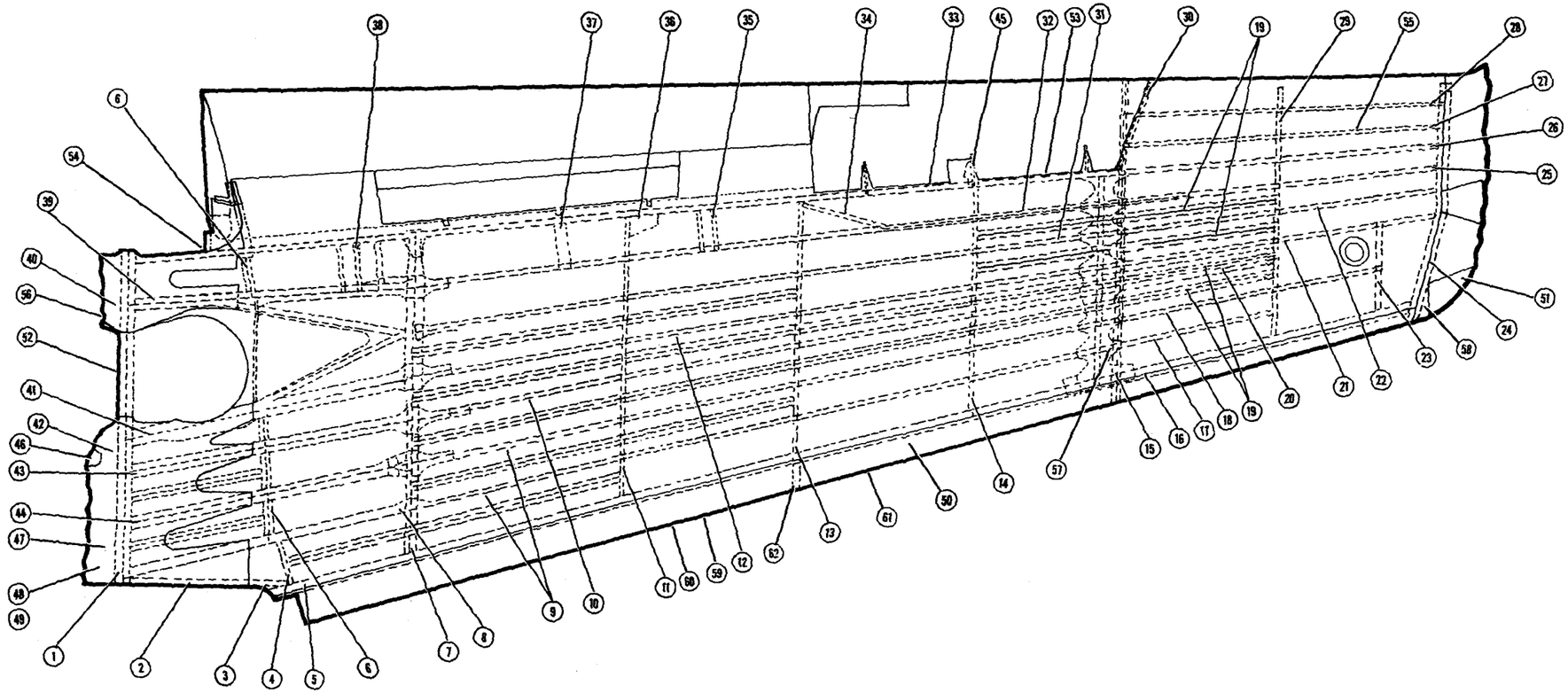
2. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2, 1145-H19 aluminum sheet.

3. Condition Normalized.

4. Contact Learjet Field Service if more than surface corrosion is encountered on the lower wing skin after removal of Century III fairing.

5. Per MIL-P15035

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2820005	Wing Installation	1	–	–	–	–
	12225-0041	Wing Assy.	2	–	–	–	–
	5420000	Wing Assy.	3	–	–	–	–
	12225-0041	• Wing Struct. Assy., LH & RH	2	–	–	–	–
	5420000	• Wing Struct. Assy., LH & RH	3	–	–	–	–
1	12225-0052	• • Rib Assy. (WS 0.0)	1	–	–	–	–
	12225-0052	• • • Doubler	1	7075-T73	0.080	–	Replace
	12225-0052	• • • Web	1	7075-T73	0.080	–	Replace
	12225-0081	• • • Doubler	1	7075-T73	0.063	–	Replace
	12225-0081	• • • Attach Angle (11 ea.)	1	7075-T73	0.080	–	Replace
	12225-0081	• • • Filler	1	2024-T351	0.250	–	Replace
	12225-0081	• • • Filler (2 ea.)	1	2024-T3	0.160	–	Replace
	12225-0081	• • • Filler (4 ea.)	1	2024-T3	0.125	–	Replace
	12225-0081	• • • Doubler	1	7075-T73	0.100	–	Replace
	12225-0081	• • • Strip	1	7075-T651	0.100	–	Replace
	12225-0081	• • • Strip	1	7075-T651	0.125	–	Replace
	12225-0081	• • • Stiffener (2 ea.)	1	S-512	–	–	Replace
	12225-0081	• • • Stiffener	1	2024-T3	0.125	–	Replace
	12225-0090	• • • Cap, Lower	1	7075-T73I	2.500	–	Replace
	12225-0090	• • • Cap, Upper	1	7075-T73I	2.500	–	Replace
	5427020	• • • Bracket	4	2024-T3 Clad	0.040	–	Replace
	5427014	• • • Bracket	1	2024- T42 Clad	0.050	–	Replace
	12225-0052	• • • Bracket	3	2024-T42 Clad	0.063	–	Replace
	12225-0052	• • • Bracket	3	2024-T3 Clad	0.040	–	Replace
	12225-0052	• • • Stiffener (2 ea.)	3	S-502	–	–	Replace
	12225-0052	• • • Stiffener	3	2024-T42 Clad	0.080	–	Replace
	12225-0052-L1496	• • • Filler	5	2024-T3 Clad	0.050	–	Replace
	12225-0052	• • • Stiffener	6	2024-T3 Clad	0.050	–	Replace
2	2822055	• • Stiffener	1	S-733	–	–	Replace
	2322044	• • Splice Instl., Spar No. 1	1	–	–	–	Replace
3	2322044	• • • Angle, Upper	1	2024-T42 Clad	0.125	F4-6	Replace
	2322044	• • • Angle, Lower	1	2024-T42 Clad	0.125	F4-6	Replace
	2322044	• • • Splice Angle, Upper	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Splice Angle, Lower	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Splice Angle, Upper	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Splice Angle, Lower	1	2024-T42 Clad	0.080	F4-6	Replace
	2322044	• • • Filler, Lower	1	2024-T3 Clad	0.080	F4-6	Replace
	2322044	• • • Filler, Upper	1	2024-T3 Clad	0.080	F4-6	Replace
	2322044	• • • Attach Angle	1	2024-T42 Clad	0.063	F4-6	Replace
4	2322293	• • Rib Assy.	1	–	–	–	–
	2322293	• • • Rib Cap, Upper	1	S-502	–	–	Replace
	2322293	• • • Rib Cap, Lower	1	S-502	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322293	• • Web	1	2024-T3 Clad	0.063	–	Replace
	2322293	• • Attach Angle (4 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322293	• • Filler (2 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2322293	• • Stiffener	1	S-512	–	–	Replace
5	2322564	• • Spar Assy., No. 1 (WS 27 to 181)	1	–	–	–	–
	2322564	• • • Spar	1	2024-T3 Clad	0.080	–	Replace
	2322564	• • • Doubler (Access Cover)	1	2024-T3 Clad	0.080	–	Replace
	2484039	• • • Access Cover	1	2024-T3 Clad	0.063	–	Replace
	2322257	• • • Stiffener (12 ea.)	1	S-571	–	–	Replace
6	12225-0058	• • Rib Assy., Fuselage Attach (4 ea.) (WS 26.0)	1	–	–	–	–
	12225-0065	• • • Splice, LH & RH	1	7075-T73			
	12225-0058	• • • Filler (3 ea.)	1	2024-T3 Clad	0.188	–	Replace
	12225-0058	• • • Filler	1	2024-T3 Clad	0.120	–	Replace
	12225-0058	• • • Filler	1	2024-T3 Clad	0.071	–	Replace
	12225-0058	• • • Filler	1	2024-T3 Clad	0.063	–	Replace
	2322275	• • • Fitting	1	2014-T6	–	F4-1	51-71-01
	2322281	• • • Fitting	1	2014-T6	–	F4-4	51-71-01
	2822173	• • • Fitting	1	7075-T73 Plate	–	F-4	51-71-01
	2822171	• • • Fitting	1	7075-T6	–	–	51-71-01
	2822174	• • • Fitting	1	7075-T73 Plate	–	F-4	51-71-01
	12225-0058	• • • Gusset	1	2024-T3 Clad	0.063	–	Replace
	12225-0058	• • • Tee (LH Only)	1	S-569	–	–	Replace
	2322290	• • • Tee (RH Only)	1	S-569	–	–	Replace
	12225-0058	• • • Doubler (3 ea.)	1	2024-T3 Clad	0.125	–	Replace
	12225-0058	• • • Doubler	1	2024-T3 Clad	0.090	–	Replace
	12225-0058	• • • Tee	1	S-774	–	–	Replace
	12225-0058	• • • Web	1	2024-T42 Clad	0.125	–	Replace
	12225-0058	• • • Tee	1	S-775	–	–	Replace
	12225-0058	• • • Attach Angle	1	2024-T42 Clad	1.250	–	Replace
	12225-0058	• • • Web	1	2024-T42 Clad	0.125	–	Replace
	12225-0058	• • • Doubler	1	2024-T3 Clad	0.080	–	Replace
	12225-0058	• • • Tee	1	S-771	–	–	Replace
	12225-0058	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	12225-0058	• • • Clip	1	2024-T3 Clad	0.040	–	Replace
	12225-0058	• • • Doubler	1	7075-T6	0.250	–	Replace
	12225-0058	• • • Tee	1	S-598	–	–	Replace
	12225-0058	• • • Tee	1	S-597	–	–	Replace
	12225-0058	• • • Tee	1	S-771	–	–	Replace
	12225-0058	• • • Web	1	2024-T3 Clad	0.080	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
7	12225-0005	• Rib Assy. (WS 53)	1	–	–	–	–
	12225-0005	• • Filler	1	2024-T3	0.160	–	Replace
	12225-0005	• • Fairlead	1	Phenolic 5	3/16	–	Replace
	12225-0005	• • Fairlead	1	Phenolic 5	0.250	–	Replace
	12225-0005	• • Angle, Spar Tie (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	12225-0005	• • Angle	1	2024-T42 Clad	0.080	–	Replace
	12225-0005	• • Doubler	1	7075-T73	0.160	–	Replace
	12225-0005	• • Web	1	7075-T73	0.160	–	Replace
	12225-0005	• • Web	1	7075-T73	0.080	–	Replace
	12225-0065	• • Splice	1	7075-T73	–	–	Replace
	12225-0091	• • Splice	1	7075-0	0.250	–	Replace
	12225-0091	• • Splice	1	7075-0 Plate	1.500	–	Replace
	12225-0091	• • Splice Plate	1	7075-0 Plate	0.250	–	Replace
	12225-0091	• • Rib Cap, Upper	1	S-772	–	–	Replace
	12225-0091	• • Rib Cap, Lower	1	S-772	–	–	Replace
	12225-0095	• • Angle	1	2024-T42 Clad	0.080	–	Replace
	2322320	• • Filler	1	2024-T3 Clad	0.160	–	Replace
	2822166	• • Bracket	1	6061-T6	0.063	–	Replace
8	12225-0006	• Spar Assy., No. 2, Inbd (WS 0 to 53)	1	–	–	–	–
	12225-0006	• • Cap, Upper	1	S-5051	–	–	Replace
	12225-0006	• • Cap, Lower	1	S-5051	–	–	Replace
	12225-0006	• • Doubler	1	7075-T73	0.312	–	Replace
	12225-0006	• • Plate	1	7075-T73	0.125	–	Replace
	12225-0006	• • Stiffener (4 ea.)	1	S-571	–	–	Replace
	12225-0006	• • Web	1	7075-T73	0.080	–	Replace
	12225-0006	• • Plate	1	7075-T73	0.125	–	Replace
	12225-0088	• • Fitting	2	7075-T73	0.030	–	Replace
	2822148	• • Fitting	3	7075-T73	2.500	–	Replace
	12225-0006	• • Stiffener	1	S571	–	–	Replace
9	12225-0010	• • Spar Assy., No. 2 and No. 3, Outbd (WS 53 to 181)	1	–	–	–	–
	12225-0010	• • • No. 2 Assy.	1	–	–	–	–
	12225-0010	• • • • Angle	32	7075-T73	0.080	–	Replace
	12225-0010	• • • • Angle	1	7075-T73	0.080	–	Replace
	12225-0010	• • • • Doubler	1	7075-T73	0.100	–	Replace
	12225-0010	• • • • Doubler (5 ea.)	1	2024-T42 Clad	0.080	–	Replace
	12225-0010	• • • • Plate (2 ea.)	1	2024-T3 Clad	0.080	–	Replace
	12225-0010	• • • • Angle	1	S-554	–	–	Replace
	12225-0010	• • • • Web	1	2024-T3	0.080	–	Replace
	12225-0010	• • • • Doubler (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	12225-0010	• • • • Doubler	1	2024-T42 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0010	• • • • Stiffener	1	S-571	–	–	Replace
	12225-0083	• • • • Fitting	1	7075-T73 Clad	–	–	Replace
	12225-0010	• • • • Doubler	1	2024-T42 Clad	0.080	–	Replace
	2322257	• • • • Stiffener (2 ea.)	1	S-571	–	–	Replace
	2322257	• • • • Stiffener	1	S-512	–	–	Replace
	12225-0010	• • • • Angle	1	S-571	–	–	Replace
	12225-0010	• • • • Angle	33	7075-T73	0.080	–	Replace
	12225-0010	• • • • Doubler	34	2024-T42 Clad	0.080	–	Replace
	12225-0010	• • • No. 3 Assy.	1	–	–	–	Replace
	12225-0010	• • • • Tee, Upper	1	7075-T73	1.900	–	Replace
	12225-0010	• • • • Tee, Upper	35	S-5054	1.900	–	Replace
	12225-0010	• • • • Tee, Lower	1	S-5054	–	–	Replace
	12225-0010	• • • • Tee, Lower	1	7075-T73	1.900	–	Replace
	12225-0010	• • • • Angle, Lower	1	2024-T4 Clad	0.080	–	Replace
	12225-0010	• • • • Angle, Upper (2 ea.)	1	2024-T4 Clad	0.080	–	Replace
	12225-0010	• • • • Angle, Backup	1	7075-T73	0.080	–	Replace
	12225-0010	• • • • Stiffener (14 ea.)	1	S571	–	–	Replace
	12225-0010	• • • • Stiffener (5 ea.)	34	S571	–	–	Replace
	12225-0084	• • • • Fitting	10	7075-T73	–	–	Replace
	12225-0092	• • • • Fitting (2 ea.)	10	7075-T73	–	–	Replace
	2822152	• • • • Fitting	34	7075-T73	1.900	–	Replace
	2822153	• • • • Fitting	34	7075-T73	2.700	–	Replace
	2822168	• • • • Fitting	34	7075-T73	1.900	–	Replace
	12225-0010	• • • • Doubler (2 ea.)	1	2024-T42	0.080	–	Replace
	12225-0010	• • • • Doubler	1	2024-T3	0.080	–	Replace
	12225-0010	• • • • Doubler (3 ea.)	1	2024-T4	0.080	–	Replace
	12225-0010	• • • • Filler	1	2024-T4	0.188	–	Replace
	12225-0010	• • • • Web	1	2024-T3	0.080	–	Replace
	12225-0010	• • • • Filler (2 ea.)	1	2024-T4 Clad	0.187	–	Replace
	12225-0010	• • • • Filler	1	2024-T4 Clad	0.312	–	Replace
	12225-0010	• • • • Angle	34	–	–	–	Replace
10	12225-0060	• • Spar No. 4 Assy., Outbd (WS 53 to 181)	1	–	–	–	–
	12225-0060	• • • Angle, Lower, LH	1	7075-T73	0.080	–	Replace
	12225-0060	• • • Splice	1	2014-T6	0.080	–	Replace
	12225-0060	• • • Stiffener (WS 59)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 64)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 72)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 79)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 85)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 99)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 120)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 132)	1	S-705	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0060	• • • Stiffener (WS 139)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 146)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 152)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 164)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 170)	1	S-705	–	–	Replace
	12225-0060	• • • Stiffener (WS 176)	1	S-705	–	–	Replace
	12225-0060	• • • Doubler (WS 86)	1	2024-T3 Clad	0.063	–	Replace
	12225-0060	• • • Doubler (WS 149)	1	2024-T3 Clad	0.080	–	Replace
	12225-0060	• • • Filler (WS 73) Upper	1	2024-T3 Clad	0.040	–	Replace
	12225-0060	• • • Filler (WS 66) Lower	1	2024-T3 Clad	0.040	–	Replace
	12225-0060	• • • Filler (WS 59) Lower	1	2024-T4	0.250	–	Replace
	12225-0060	• • • Filler (WS 59) Upper	1	2024-T4	0.250	–	Replace
	12225-0060	• • • Filler (WS 66) Upper & Lower	1	2024-T4	0.250	–	Replace
	12225-0060	• • • Splice (WS 69) Upper	1	2014-T6	0.080	–	Replace
	12225-0060	• • • Tee (WS 55) Upper	1	S-770	–	–	Replace
	12225-0060	• • • Angle (WS 120) Upper	1	7075-T73	0.080	–	Replace
	12225-0060	• • • Doubler (WS 109)	1	2024-T42 Clad	0.080	–	Replace
	12225-0060	• • • Doubler (WS 63) Lower	1	2024-T42 Clad	0.080	–	Replace
	12225-0060	• • • Doubler (WS 179)	1	2024-T3 Clad	0.063	–	Replace
	12225-0060	• • • Doubler (WS 161)	1	2024-T3 Clad	0.063	–	Replace
	12225-0060	• • • Channel (WS 139)	1	2024-T3 Clad	0.080	–	Replace
	12225-0097	• • • Tee (WS 59)	1	7075-T73	0.080	–	Replace
	12225-0060	• • • Tee	32	S-570	–	–	Replace
	12225-0060	• • • Angle, Upper	32	7075-0	0.080	–	Replace
	2822157	• • • Fitting (WS 53) Lower	8	7075-T73	2.000	–	Replace
	12225-0085	• • • Fitting (WS 53) Lower	9	7075-T73	3.000	–	Replace
	2822158	• • • Fitting (WS 53)	8	7075-T73	3.000	–	Replace
	12225-0085	• • • Fitting (WS 53)	9	7075-T73	3.000	–	Replace
	2822169	• • • Fitting (WS 53) Upper	8	7075-T73	2.000	–	Replace
	12225-0085	• • • Fitting (WS 53) Upper	9	7075-T73	3.000	–	Replace
11	2322330	• • Rib Assy. (WS 92)	1	–	–	–	–
	2322330	• • • Angle (at Spar #5)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Angle (at Spar #3)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Rib Segment (7 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Filler (Spar 3 to 4) Lower	1	2024-T3 Clad	0.080	–	Replace
12	12225-0061	• • Spar No. 5 Assy., Outbd (WS 53 to 181)	1	–	–	–	–
	12225-0061	• • • Cap (WS 73) Lower	1	S-778	–	–	Replace
	12225-0061	• • • Angle (WS 72 to 181) Upper	1	7075-T73	–	–	Replace
	12225-0061	• • • Cap (WS 53 to 72) Upper	1	S-777	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0061	• • • Splice (WS 67) Lower	1	2014-T6	0.080	–	Replace
	12225-0061	• • • Splice (WS 67) Upper	1	2014-T6	0.080	–	Replace
	12225-0061	• • • Splice (WS 83) Upper	1	7075-T73	0.080	–	Replace
	12225-0061	• • • Angle (WS 99 to 119) Lower	1	7075-T73	0.080	–	Replace
	12225-0061	• • • Doubler (WS 149)	1	2024-T3	0.063	–	Replace
	12225-0061	• • • Filler (WS 73) Upper	1	2024-T3 Clad	0.020	–	Replace
	12225-0061	• • • Filler (WS 53)	1	7075-T73	0.125	–	Replace
	12225-0093	• • • Fitting (WS 53)	10	7075-T73	2.800	–	Replace
	2822160	• • • Fitting (WS 53)	11	7075-T73	3.000	–	Replace
	12225-0096	• • • Fitting (WS 53)	10	7075-T73	3.400	–	Replace
	2822161	• • • Fitting (WS 53)	11	7075-T73	3.500	–	Replace
	12225-0086	• • • Fitting (WS 53)	10	7075-T73	3.500	–	Replace
	2822162	• • • Fitting (WS 53)	11	7075-T73	3.500	–	Replace
	12225-0061	• • • Stiffener (14 ea.)	1	S-571	–	–	Replace
	12225-0061	• • • Doubler (WS 164)	1	7075-T73	0.100	–	Replace
	12225-0061	• • • Doubler	1	2024-T3	0.063	–	Replace
	12225-0061	• • • Spar (WS 53 to 181)	1	2024-T3	0.080	–	Replace
	5426035	• • • Bracket	3	2024-T42	0.040	–	Replace
13	2322340	• • Rib Assy. (WS 125)	1	–	–	–	–
	2322340	• • • Rib (7 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322340	• • • Doubler (Spar 3 to 4)	1	2024-T3 Clad	0.071	–	Replace
	2322340	• • • Angle (Spar 5)	1	2024-T42 Clad	0.071	–	Replace
14	2322350	• • Rib Assy. (WS 157)	1	–	–	–	–
	2322350	• • • Angle (3 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322350	• • • Rib (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322350	• • • Rib (5 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2322350	• • • Doubler (Spar 3 to 4)	1	2024-T3 Clad	0.063	–	Replace
15	12225-0014	• • Rib Assy. (WS 181)	1	–	–	–	–
	12225-0014	• • • Angle (7 ea.)	1	2024-T3 Clad	0.050	–	Replace
	12225-0014	• • • Rib (Spar 6)	1	2024-T3 Clad	0.050	–	Replace
	12225-0014	• • • Filler (3 ea.)	1	2024-T3 Clad	0.016	–	Replace
	12225-0014	• • • Splice Plate (WS 187)	1	2024-T3 Clad	0.063	–	Replace
	12225-0014	• • • Angle (WS 187) Upper	1	2024-T3 Clad	0.063	–	Replace
	12225-0014	• • • Angle (WS 187) Lower	1	2024-T3 Clad	0.063	–	Replace
	12225-0014	• • • Filler (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
	12225-0014	• • • Clip (2 ea.)	1	2024-T3 Clad	0.050	–	Replace
	12225-0014	• • • Angle (2 ea.) Upper	1	2024-T3 Clad	0.050	–	Replace
	12225-0014	• • • Angle (2 ea.) Lower	1	2024-T3 Clad	0.050	–	Replace
	12225-0014	• • • Angle (Spar 4, WS 185) Upper & Lower	1	2024-T3 Clad	0.050	–	Replace
	12225-0014	• • • Splice Angle	1	2024-T42 Clad	0.063	–	Replace
	12225-0014	• • • Rib (7 ea.)	1	2024-T42 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0014	• • • Doubler (Spar 6 to 7)	1	2024-T3 Clad	0.080	–	Replace
	12225-0014	• • • Rib (Spar 7 to 8)	1	2024-T42 Clad	0.063	–	Replace
	12225-0014	• • • Clip (Spar 6 to 7)	1	2024-T3 Clad	0.040	–	Replace
	12225-0031	• • • Lower Skin Doubler	1	2024-T6	0.080	–	Replace
	12225-0031	• • • Upper Skin Doubler	1	2014-T6	0.080	–	Replace
	5420000-L1160	• • • Shim	12	2024-T3	0.016	–	Replace
	12225-0014	• • • Shim (Rib & Upper Skin)	13	③	0.040	–	Replace
	12225-0015	• Wing Extension Instl., LH & RH (WS 185 to 244)	1	–	–	–	–
16	12225-0047	• • • Spar	1	2024-T3 Clad	0.063	–	Replace
	12225-0047	• • • Stiffener (5 ea.)	1	S-571	–	–	Replace
17	12225-0016	• • Spar Assy. (WS 185 to 213)	1	–	–	–	–
	12225-0016	• • • Spar No. 2	1	2024-T3 Clad	0.050	–	Replace
	12225-0016	• • • Splice Angle, Upper	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Splice Angle, Lower	1	2024-T3 Clad	0.050	–	Replace
	12225-0016	• • • Splice Doubler	1	2024-T42 Clad	0.071	–	Replace
	2322257	• • • Stiffener	1	S-571	–	–	Replace
18	12225-0016	• • Spar Assy. (WS 185 to 233)	1	–	–	–	–
	12225-0016	• • • Spar No. 3	1	2024-T3 Clad	0.050	–	Replace
	12225-0016	• • • Splice Plate	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Splice Angle, Lower	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Splice Angle, Upper	1	2024-T42 Clad	0.050	–	Replace
	2322257	• • • Stiffener (3 ea.)	1	S-571	–	–	Replace
	12225-0016	• • • Doubler	1	2024-T42	0.071	–	Replace
19	2822411	• • Stiffener (WS 185 to 213)	1	S-734	–	–	Replace
20	12225-0016	• • • Spar Assy.	1	–	–	–	–
	12225-0016	• • • Spar No. 4	1	2024-T3 Clad	0.050	–	Replace
	12225-0016	• • • Splice Plate	1	2024-T42 Clad	0.050	–	Replace
	2322257	• • • Stiffener (3 ea.)	1	S-571	–	–	Replace
21	12225-0016	• • Spar Assy. (WS 185 to 244)	1	–	–	–	–
	12225-0016	• • • Spar No. 5	1	2024-T3 Clad	0.050	–	Replace
	2826031	• • • Bracket Assy. (WS 215)	1	2024-T42 Clad	0.063	–	Replace
	12225-0016	• • • Splice Angle, Upper (WS 215)	1	2024-T42 Clad	0.063	–	Replace
	12225-0016	• • • Splice Angle, Lower (WS 215)	1	2024-T42 Clad	0.063	–	Replace
	12225-0016	• • • Doubler (WS 215)	1	2024-T3 Clad	0.063	–	Replace
	12225-0016	• • • Doubler (WS 193)	1	2024-T3 Clad	0.050	–	Replace
	2322257	• • • Stiffener (3 ea.)	1	S-571	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0016	• • • Splice Angle, Upper (WS 193)	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Splice Angle, Lower (WS 193)	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Splice Plate (WS 190)	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Door Assy.	1	2024-T3 Clad	0.071	–	Replace
	12225-0016	• • • Doubler (WS 239)	1	2024-T3 Clad	0.050	–	Replace
22	12225-0016	• • Spar Assy. (WS 185 to 244)	1	–	–	–	–
	12225-0016	• • • Fitting, Lower (WS 244)	1	2024-T42 Clad	0.071	–	Replace
	12225-0016	• • • Fitting, Upper (WS 244)	1	2024-T42 Clad	0.071	–	Replace
	12225-0016	• • • Fitting, Lower (WS 244)	1	2024-T42 Clad	0.071	–	Replace
	12225-0016	• • • Fitting, Upper (WS 244)	1	2024-T42 Clad	0.071	–	Replace
	12225-0016	• • • Splice Plate (WS 190)	1	2024-T42 Clad	0.050	–	Replace
	12225-0016	• • • Spar No. 6	1	2024-T3 Clad	0.050	–	Replace
	2322257	• • • Stiffener (5 ea.)	1	S-571	–	–	Replace
	5426040	• • • Bracket Assy.	1	2024-T4	0.050	–	Replace
23	2822430	• • Intercostal	1	2024-0 Clad	0.050	–	Replace
	2822430	• • Clip (Spar 3)	1	2024-0 Clad	0.050	–	Replace
	2822430	• • Clip (Spar 2)	1	2024-0 Clad	0.050	–	Replace
24	12225-0019	• • Rib Assy. (WS 244)	1	–	–	–	–
	12225-0019	• • • Rib	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Strap, Upper	1	2024-T3 Clad	0.080	–	Replace
	12225-0019	• • • Strap, Lower	1	2024-T3 Clad	0.080	–	Replace
	12225-0019	• • • Strap, LE	1	2024-T42 Clad	0.063	–	Replace
	12225-0019	• • • Clip (Spar 9)	1	2024-T42 Clad	0.063	–	Replace
	12225-0019	• • • Rib (Spar 9 to TE)	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Angle (Spar 10)	1	2024-0	0.040	–	Replace
	12225-0019	• • • Filler	1	2024-T3 Clad	0.063	–	Replace
	12225-0019	• • • Filler	1	2024-T3 Clad	0.050	–	Replace
	12225-0019	• • • Angle (Spar 8)	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Angle (Spar 7)	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Splice (Spar 5)	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Angle (Spar 1)	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Strap	1	2024-T42 Clad	0.063	–	Replace
	12225-0019	• • • Angle (Spar 5)	1	2024-T42 Clad	0.071	–	Replace
	12225-0019	• • • Spacer (Spar 5)	1	2024-T3 Clad	0.071	–	Replace
	12225-0019	• • • Clip (Spar 6)	1	2024-T4 Clad	0.063	–	Replace
	12225-0019	• • • Nose Rib	1	2024-T42 Clad	0.040	–	Replace
	12225-0019	• • • Filler (LE)	1	2024-T3 Clad	0.071	–	Replace
	12225-0019	• • • Shim (Spar 2)	1	2024-T3 Clad	0.080	–	Replace
	12225-0019	• • • Angle (LE)	1	2024-T42 Clad	0.040	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
25	12225-0016	• • Spar Assy. (WS 185 to 244)	1	–	–	–	–
	12225-0016	• • • Stiffener Assy. (WS 210)	1	S-571	–	–	Replace
	12225-0016	• • • Spar No. 7	1	2024-T3 Clad	0.050	–	Replace
	2322257	• • • Stiffener (7 ea.)	1	S-571	–	–	Replace
	12225-0016	• • • Splice Plate	1	2024-T42 Clad	0.050	–	Replace
26	12225-0016	• • Spar Assy. (WS 181 to 244)	1	–	–	–	–
	12225-0016	• • • Spar No. 8	1	2024-T3 Clad	0.050	–	Replace
	2322257	• • • Stiffener (7 ea.)	1	S-571	–	–	Replace
27	12225-0016	• • Spar Assy. (WS 181 to 244)	1	–	–	–	–
	12225-0016	• • • Spar No. 9	1	2024-T3 Clad	0.050	–	Replace
	12225-0016	• • • Fitting, Fwd (WS 244)	1	2024-T42 Clad	0.071	–	Replace
	12225-0016	• • • Fitting, Aft (WS 244)	1	2024-T42 Clad	0.071	–	Replace
	12225-0016	• • • Stiffener (8 ea.)	1	S-571	–	–	Replace
28	12225-0016	• • • Spar No. 10 (WS 181 to 244)	1	2024-T3 Clad	0.040	–	Replace
29	2822430	• • Rib Assy. (WS 213)	1	–	–	–	–
	2822430	• • • Intercostal (Spar 1 to 3)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 1)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 2)	1	2024-T42 Clad	0.050	–	Replace
	2822430	• • • Intercostal (Spar 3 to 5)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 3)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 4)	1	2024-T42 Clad	0.050	–	Replace
	2822430	• • • Intercostal (Spar 5 to 6)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 5)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Intercostal (Spar 6 to 7)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 7)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Intercostal (Spar 7 to 8)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Clip (Spar 7)	1	2024-T42 Clad	0.063	–	Replace
	2822430	• • • Intercostal (Spar 8 to 9)	1	2024-T42 Clad	0.050	–	Replace
	2822430	• • • Clip (Spar 8)	1	2024-T42 Clad	0.032	–	Replace
	2822412	• • • Splice (Spar 8, WS 181 to 244)	1	7475-T761	0.080	–	Replace
	2822430	• • • Intercostal (Spar 9 to 10)	1	2024-T42 Clad	0.032	–	Replace
	2822430	• • • Clip (Spar 10)	1	2024-T42 Clad	0.032	–	Replace
	2822430	• • • Intercostal (Spar 10 to Trailing Edge)	1	2024-T42 Clad	0.032	–	Replace
	2822412	• • • Splice (Spar 10, WS 181 to 244)	1	2024-T3	0.080	–	Replace
	2822412	• • • Filler	2	2024-T3	0.020	–	Replace
30	2822430	• • Intercostal	1	2024-T42 Clad	0.050	–	Replace
	2822430	• • Spacer (Spar 8)	1	2024-T3 Clad	0.120	–	Replace
	2822430	• • Clip (Spar 8)	1	2024-T42 Clad	0.050	–	Replace
	2424001	• • Channel	1	304A Stainless	0.016	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
31	12225-0062	• • Spar Assy., No. 6 Outbd (WS 53 to 181)	1	–	–	–	–
	12225-0062	• • • Spar (WS 53 to 181)	1	2024-T3 Clad	0.080	–	Replace
	12225-0062	• • • Stiffener (3 ea.)	2	S-571	–	–	Replace
	12225-0062	• • • Stiffener (6 ea.)	1	S-571	–	–	Replace
	12225-0062	• • • Stiffener	3	S-644	–	–	Replace
	12225-0062	• • • Stiffener	3	S-557	–	–	Replace
	12225-0062	• • • Channel	1	2024-T3 Clad	0.080	–	Replace
	12225-0062	• • • Doubler (3 ea.)	2	2024-T3 Clad	0.063	–	Replace
	12225-0062	• • • Doubler	1	2024-T3 Clad	0.080	–	Replace
	12225-0062	• • • Angle	1	7075-T73	0.080	–	Replace
	12225-0062	• • • Doubler	1	2024-T42 Clad	0.080	–	Replace
	12225-0062	• • • Doubler	1	2024-T42 Clad	0.071	–	Replace
	12225-0062	• • • Doubler	3	2024-T42 Clad	0.071	–	Replace
	2322257	• • • Stiffener (2 ea.)	2	S-571	–	–	Replace
	2322257	• • • Stiffener (4 ea.)	1	S-571	–	–	Replace
	12225-0094	• • • Fitting, Lower	2	7075-T73	1.380	–	Replace
	2822176	• • • Fitting, Lower	3	7075-T73	1.38	–	Replace
	12225-0087	• • • Fitting, Upper	2	7075-T73	2.200	–	Replace
	2822175	• • • Fitting, Upper	3	S-5022	–	–	Replace
	2822176	• • • Splice Angle, Upper RH	3	7075-T73	1.000	–	Replace
	2822176	• • • Splice Angle, Upper LH	3	7075-T73	1.000	–	Replace
32	12225-0063	• • Spar Assy., No. 7 (WS 53 to 181)	1	–	–	–	Replace
	12225-0063	• • • Spar (WS 53 to 181)	1	2024-T3 Bar	0.080	–	Replace
	12225-0063	• • • Cap, Upper (WS 53 to 76)	32	S-776	–	–	Replace
	12225-0063	• • • Cap, Upper (WS 53 to 76)	15	S-5059	–	–	Replace
	12225-0063	• • • Filler	1	7075-T73	0.180	–	Replace
	12225-0063	• • • Filler	1	7075-T73	0.125	–	Replace
	12225-0063	• • • Stiffener (10 ea.)	1	S-571	–	–	Replace
	12225-0063	• • • Stiffener	14	S-571	–	–	Replace
	12225-0063	• • • Stiffener Assy.	8	S-571	–	–	Replace
	2322257	• • • Stiffener (4 ea.)	1	S-571	–	–	Replace
	12225-0073	• • • Fitting, Upper Fwd	32	7075-T73	3.000	–	Replace
	2822164	• • • Fitting, Upper Fwd	15	7075-T73	4.000	–	Replace
	12225-0074	• • • Fitting, Upper Aft	32	7075-T73	3.400	–	Replace
	2822165	• • • Fitting, Upper Aft	15	7075-T73	3.000	–	Replace
	12225-0073	• • • Fitting, Lower	32	7075-T73	3.000	–	Replace
	2822165	• • • Fitting, Lower	15	7075-T73	3.000	–	Replace
	12225-0063	• • • Clip	1	2024-T3 Clad	0.050	–	Replace
	12225-0063	• • • Angle	1	2024-T73	0.080	–	Replace
	12225-0063	• • • Angle (2 ea.)	1	7075-T73	0.080	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0063	• • • Angle, Lower	1	2014-T6	0.080	–	Replace
	12225-0063	• • • Angle, Lower	1	7075-T3	0.080	–	Replace
	12225-0063	• • • Angle	1	2024-T3 Clad	0.080	–	Replace
	12225-0063	• • • Doubler	8	2024-T3 Clad	0.080	–	Replace
33	12225-0072	• • Spar No. 8 (WS 0 to 181)	1	–	–	–	–
	12225-0072	• • • Filler (WS 0)	1	2024-T3 Clad	0.125	–	Replace
	12225-0072	• • • Spar Cap, Upper	1	S-518	–	–	Replace
	12225-0072	• • • Spar Cap, Lower	1	S-756	–	–	Replace
	2441007	• • • Bearing Plate	1	2024-T3	0.312	F4-1	51-71-05
	2322221	• • • Bearing Plate	1	2024-T4	0.625	–	51-71-05
	2322212	• • • Stiffener (3 ea.)	1	S-571	–	–	Replace
	2322212	• • • Stiffener (2 ea.)	2	S-571	–	–	Replace
	2322212	• • • Cover Plate	1	2024-T3 Clad	0.100	–	Replace
	2322212	• • • Plate	1	2024-T3 Clad	0.125	–	Replace
	2322212	• • • Plate	1	2024-T3 Clad	0.063	–	Replace
	12225-0072	• • • Doubler	1	2024-T3 Clad	0.090	–	Replace
	12225-0072	• • • Web, Outbd (WS 80 to 181)	1	2024-T3 Clad	0.090	–	Replace
	12225-0072	• • • Web, Inbd (WS 0 to 80)	1	2024-T3 Clad	0.090	–	Replace
	2322212	• • • Doubler (WS 68 to 80)	1	2024-T3 Clad	0.100	–	Replace
	12225-0072	• • • Angle	3	S-680	–	–	Replace
	12225-0072	• • • Filler	3	2024-T3 Clad	0.125	–	Replace
	2322212	• • • Stop	2			–	Replace
	5425020	• • • Stop	3			–	Replace
	2822058	• • Shroud Instl., Fuel Cell	3	–	–	–	–
34	2822057	• • • Shroud	3	2024-T3 Clad	0.063	–	Replace
	2822057	• • • Rib	3	2024-T3 Clad	0.063	–	Replace
	2822057	• • • Rib	3	2024-T3 Clad	0.063	–	Replace
	2822057	• • • Angle (6 ea.)	3	2024-T42 Clad	0.063	–	Replace
35	2322560	• • Rib Instl., Outbd Flap Track Support	–	–	–	–	–
	2322560	• • • Rib Assy., Inner	1	–	–	–	–
	2322560	• • • • Rib, Inner	1	2024-0 Clad	0.063	F4-1	Replace
	2322560	• • • • Fairlead, Outboard	1	Phenolic 5	0.188	–	Replace
	2322560	• • • Rib Assy., Outer	1	–	–	–	–
	2322560	• • • • Rib, Outer	1	2024-0 Clad	0.063	F4-1	Replace
	2322560	• • • • Fairlead, Outboard	1	Phenolic 5	0.188	–	Replace
36	2325079	• • Flap Actuator Support	1	–	–	–	–
	2325079	• • • Bracket, Upper	1	2024-T42 Clad	0.063	F4-1	Replace
	2325079	• • • Bracket, Lower	1	2024-T42 Clad	0.063	F4-1	Replace
	2325079	• • • Brace	16	S-534	–	F4-1	Replace
	2325079	• • • Brace	17	S-5088	–	F4-1	Replace
	2325079	• • • Fitting	1	2024-T3	0.160	F4-1	51-71-02

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322516	• • Bracket Instl., LH & RH, Spoiler Actuator	36	–	–	–	–
37	2322516	• • • Bracket Assy., LH & RH, Spoiler Actuator	36	–	–	–	Replace
	2322516	• • • • Weld Assy., LH & RH	36	–	–	–	Replace
	2322516	• • • • • Plate	36	2024-0 Clad	0.063	–	Replace
	2322516	• • • • • Bracket	36	2024-0 Clad	0.063	–	Replace
	2322516	• • • Fairlead (2 ea.)	36	Phenolic [5]	3/16	–	Replace
	2322516	• • • Support Bracket, LH & RH (2 ea.)	36	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Support Angle, LH & RH	36	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Door, LH & RH	36	2024-T3 Clad	0.080	–	Replace
	2322516	• • • Support Bracket Assy. (LH Only)	36	–	–	–	–
	2322516	• • • • Support Bracket	36	2024-T42 Clad	0.063	–	Replace
	2322516	*• • • Support Bracket (LH Only)*	*36*	*2024-T42 Clad*	*0.063*	–	*Replace*
	2422513	• • • Fitting Assy.	36	–	–	–	51-71-00
	2322516	• • • Bracket Assy., LH & RH	36	–	–	–	Replace
	2322516	• • • • Bracket, LH & RH	36	2024-T42 Clad	0.063	–	Replace
	2322516	• • • • Angle	36	2024-T42 Clad	0.063	–	Replace
	2322516	• • • • Stiffener	36	S-735	0.063	–	Replace
	2322516	• • • Plate	36	2024-T3 Clad	0.063	–	Replace
	2322516	*• • • Gusset, LH & RH*	*2*	*2024-T3 Clad*	*0.063*	*F4-4*	*Replace*
	3122004	• • • Gusset, LH & RH	38	2024-T3 Clad	0.063	F4-4	Replace
	2322516	• • Bracket Instl., LH & RH, Spoiler Actuator	37	–	–	–	–
	2322516	• • • Fairlead (2 ea.)	37	Phenolic [5]	3/16	–	Replace
	2322516	• • • Support Angle, LH & RH	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Door, LH & RH	37	2024-T3 Clad	0.080	–	Replace
	2422513	*• • • Fitting Assy.*	*37*	–	–	–	*51-71-00*
	2322516	• • • Bracket Assy., LH & RH	37	–	–	–	Replace
	2322516	• • • • Bracket, LH & RH	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • • Angle	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Plate	37	2024-T3 Clad	0.063	–	Replace
	2322516	• • • Gusset, LH & RH	37	2024-T3 Clad	0.063	F4-4	Replace
	6022501	• • • Fitting, LH & RH	37	7075-T7451 AL Sheet	2.500	F4-4	Replace
	6022511	• • • Fitting, LH & RH	37	7075-T7451 Bare Plate	3.000	F4-4	Replace
	6022512	• • • Bracket Assy., LH & RH	37	–	–	F4-4	Replace
	6022512	• • • • Bracket, LH & RH	37	2024-T42 Clad	0.063	F4-4	Replace
38	2322560	• • Rib Instl., Inbd Flap Track Support	1	–	–	–	–
	2322560	*• • • Rib Inner*	*1*	*2024-0 Clad*	*0.063*	–	*Replace*
	2322560	• • • Rib Outer	1	2024-0 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
39	5420000V8-1	• • Spar Assy., No. 7, Inbd (WS 0 to 53)	20	–	–	–	–
	12225-0011	• • Spar Assy., No. 7, Inbd	19	–	–	–	–
	12225-0011	• • • Fairlead	1	Phenolic 5	0.188	–	Replace
	12225-0011	• • • Filler	1	7075-T73	0.188	–	Replace
	12225-0011	• • • Cover	1	7075-T73	0.080	–	Replace
	12225-0011	• • • Cover	1	7075-T73	0.100	–	Replace
	12225-0011	• • • Support	1	2024-T42 Clad	0.063	–	Replace
	12225-0011	• • • Stiffener	1	7075-T73	0.080	–	Replace
	12225-0011	• • • Filler (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
	12225-0011	• • • Filler (2 ea.)	1	7075-T73	0.188	–	Replace
	12225-0011	• • • Stiffener	1	7075-T73	0.080	–	Replace
	12225-0011	• • • Web	1	7075-T73	0.080	–	Replace
	12225-0011	• • • Cover	1	7075-T73	0.080	–	Replace
	12225-0011	• • • Spar Cap Lower	1	S-765	–	–	Replace
	12225-0070	• • • Actuator Support Fitting	1	–	–	–	51-71-05
	5420000-L1437	• • Ldg Trunnion Assy.	21	–	–	–	51-71-05
	12225-0011-V1-2	• • Ldg Trunnion Assy.	20	–	–	–	51-71-05
	2822163	• • Ldg Trunnion Assy.	22	–	–	–	51-71-05
	2322207	• • Bracket	1	2024-T3 Clad	0.063	–	Replace
	12225-0011	• • Spar Cap Upper	1	S-766	–	–	Replace
40	2822180	• • Splice, Lwr Aft Wing Skin	3	–	–	–	–
	2822178	• • • Doubler	3	7075-T73 Plate	0.312	–	Replace
	2822178	• • • Doubler, Aft	3	7475-7651	0.312	–	Replace
41	12225-0009	• • Spar Assy., No. 5, Inbd (WS 0 to 53)	1	–	–	–	–
	12225-0009	• • • Filler (2 ea.)	1	7075-T73	0.188	–	Replace
	12225-0009	• • • Spar Cap, Upper	1	S-5053	–	–	Replace
	12225-0009	• • • Spar Cap, Lower	1	S-5053	–	–	Replace
	12225-0009	• • • Web	1	7075-T73	0.125	–	Replace
	12225-0009	• • • Doubler	1	7075-T73	0.125	–	Replace
	12225-0009	• • • Stiffener	3	7075-T73	0.080	–	Replace
	12225-0009	• • • Bracket	3	2024-T42 Clad	0.040	–	Replace
	12225-0009	• • • Access Cover, Outbd	1	7075-T73	0.100	–	Replace
	12225-0009	• • • Access Cover, Inbd	1	7075-T73	0.100	–	Replace
	12225-0008	• • • Filler (WS 21)	3	2024-T3 Clad	0.190	–	Replace
	2822159	• • • Fitting	11	7075-T4	6.000	–	51-71-05
	5426029	• • • Fitting	3	–	–	–	51-71-05
	5426029	• • • • Tube	3	5052-0	0.028	–	Replace
	5426029	• • • • Plate	3	6061-T6	0.063	–	Replace
42	2822179	• • Splice, Lwr Fwd Wing Skin	3	–	–	–	–
	12225-0042	• • • Splice	3	7075-T73	0.312	–	Replace
	12225-0042	• • • Splice	3	7075-T73	0.125	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
43	12225-0008	• • Spar Assy., No. 4, Inbd (WS 0 to 53)	1	–	–	–	–
	12225-0008	• • • Spar Cap, Upper	10	S-762	–	–	Replace
	12225-0008	• • • Spar Cap, Upper	23	S-5055	–	–	Replace
	12225-0008	• • • Spar Cap, Lower	10	S-5761	–	–	Replace
	12225-0008	• • • Spar Cap, Lower	23	S-5053	–	–	Replace
	12225-0008	• • • Stiffener (7 ea.)	1	S-769	–	–	Replace
	12225-0008	• • • Stiffener (2 ea.)	1	7075-T73	0.080	–	Replace
	12225-0008	• • • Filler	1	2024-T3	0.190	–	Replace
	12225-0008	• • • Web	1	7075-T73	0.080	–	Replace
	12225-0082	• • • Fitting	10	7075-T73	9.000	–	Replace
	12225-0082	• • • Fitting	10	7075-T73	6.000	–	Replace
	2822155	• • • Fitting	23	7075-T73	2.100	–	Replace
	2822154	• • • Fitting	23	7075-T73	3.000	–	Replace
	2822156	• • • Fitting	23	7075-T73	2.100	–	Replace
	12225-0065	• • • Stiffener	24	7075-T73	0.125	–	Replace
	5420000-L1469	• • • Stiffener	25	7075-T73	0.125	–	Replace
44	12225-0007	• • Spar No. 3 Assy., Inbd (WS 0 to 53)	1	–	–	–	–
	12225-0007	• • • Spar Cap, Lower	2	S-759	–	–	Replace
	12225-0007	• • • Spar Cap, Lower	3	S-5053	–	–	Replace
	12225-0007	• • • Spar Cap, Upper	2	S-759	–	–	Replace
	12225-0007	• • • Spar Cap, Upper	3	S-5052	–	–	Replace
	12225-0007	• • • Stiffener (2 ea.)	1	7075-T73	0.080	–	Replace
	12225-0007	• • • Stiffener	2	7075-T73	0.080	–	Replace
	12225-0007	• • • Stiffener	1	7075-T3	0.080	–	Replace
	12225-0007	• • • Stiffener (2 ea.)	3	7075-T73	0.080		Replace
	12225-0008	• • • Filler	3	2024-T3	0.190	–	Replace
	12225-0007	• • • Web (2 ea.)	1	7075-T3	0.080	–	Replace
	12225-0053	• • • Fitting (2 ea.)	10	7075-T73	–	–	Replace
	12225-0067	• • • Fitting	10	7075-T73	2.700	–	Replace
	2822150	• • • Fitting	11	7075-T73	3.000	–	Replace
	2822151	• • • Fitting	11	7075-T73	1.900	–	Replace
	2822167	• • • Fitting	11	7075-T73	1.900	–	Replace
	12225-0007	• • • Doubler	26	2024-T3 Clad	0.080	–	Replace
	12225-0007	• • • Bracket	3	2024-T3 Clad	0.063	–	Replace
45	2322530	• • • Hinge Bracket Assy., Middle	1	–	–	–	51-71-00
	2322530	• • • • Stud	1	Hex Rod ▷4◁	7/16	–	Replace
	2322530	• • • • Hinge Bracket, Middle Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Bracket Hinge, Middle Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Angle	1	S-549	–	–	Replace
	2322530	• • • • Plate	1	2024-T3 Clad	0.090	–	Replace
	2322530	• • • • Arm, Hinge, Middle	1	2024-T4	0.375	–	51-71-00

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322530	• • • Bracket Assy., Hinge, Outboard	1	–	–	–	51-71-00
	2322530	• • • • Bracket, Hinge, Outboard Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Bracket, Hinge, Outboard Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Arm, Hinge	1	2024-T4	–	–	51-71-00
	2322530	• • • Bracket Assy., Hinge, Inbd	1	–	–	–	51-71-00
	2322530	• • • • Bracket, Hinge, Inboard, Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Bracket, Hinge, Inboard, Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Arm, Hinge	1	2024-T4	–	–	51-71-00
46	12225-0004	• • Wing Skin Instl., Lower, LH & RH	1	–	–	–	–
	12225-0044	• • • Wing Skin, LH & RH	1	7475-T76	0.239	–	Replace
	2322042	• • • Filler	1	2024-T3	0.080	–	Replace
	12225-0065	• • • Filler, Stiffener	1	2024-T3	0.080	–	Replace
	12225-0065	• • • Stiffener (8 ea.)	1	S734	–	–	Replace
	12225-0065	• • • Filler, Spar	1	7075-T3	0.080	–	Replace
	2822386	• • • Access Cover Instl.	1	–	–	–	–
	2622386	• • • • Bracket Assy.	1	–	–	–	Replace
	2622386	• • • • • Bracket	1	S-646	–	–	Replace
	2622386	• • • • Filler	1	2024-T3	0.190	–	Replace
	2622386	• • • • Door	1	2024-T3 Clad	0.080	–	Replace
	2622386	• • • • Bracket	1	2024-T3	0.080	–	Replace
	2822054	• • • • Door Instl., Fuel Probe	1	–	–	–	–
	2822053	• • • • • Door	1	2024-T3 Clad	0.160	–	Replace
	2826010	• • • • • Support	1	2024-T42 Clad	0.050	–	Replace
	12225-0051	• • • • Door Instl.	1	–	–	–	–
	12225-0051	• • • • • Door	1	2024-T3	0.080	–	Replace
	2326015	• • • • Bracket, Fuel Probe	1	2024-T3 Clad	0.050	–	Replace
	2322259	• • • • Door (11 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2622387	• • • • Cover, Access (5 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2622389	• • • • Cover, Access	1	2024-T3	0.090	–	Replace
47	12225-0046	• • Wing Skin Instl., Upper, LH & RH	1	–	–	–	–
	12225-0045	• • • Wing Skin	1	2014-T62	0.255	F4 ext F4-4int	Replace
	12225-0045	• • • Wing Skin	1	7475-T76	0.239	F4 ext F4-4int	Replace
	12225-0065	• • • Stiffeners (11 ea.)	1	S-734	–	–	Replace
	12225-0065	• • • Stiffeners (2 ea.)	1	S-783	–	–	Replace
	12225-0065	• • • Stiffeners	1	2024-T3	0.080	–	Replace
	12225-0076	• • • Fitting	10	4130 STL	–	F8	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2822172	• • • Fitting	23	4130 STL	–	F8	Replace
	2327038	• • • Bracket Assy.	1	–	–	–	*Replace*
	2327038	• • • • Bracket	1	2024-T42	0.063	–	Replace
	12225-0065	• • • Filler	1	2024-T3	0.080	–	Replace
	2327009	• • • Bracket	1	4130 STL	–	F4-4	Replace
48	12225-0056	• • • Splice Instl.	1	–	–	–	–
	12225-0049	• • • • Splice, Fwd, Upper Wing Skin	1	2024-T4	0.312	–	Replace
	12225-0050	• • • • Splice, Aft, Upper Wing Skin	1	2024-T4	0.312	–	Replace
	2827038	• • • Bracket Assy.	1	–	–	–	Replace
	2827038	• • • • Bracket	1	2024-T42 Clad	0.063	–	Replace
	5427019	• • • Bracket Assy.	27	–	–	–	Replace
	5427019	• • • • Bracket	27	2024-T3 Clad	0.040	–	Replace
	5427021	• • • Mounting Assy.	28	–	–	–	*Replace*
	5427021	• • • • Mounting	28	2024-T42	0.080	–	Replace
49	12225-0055	• • • Splice Instl.	1	–	–	–	–
	12225-0042	• • • • Splice, Fwd, Lower Wing Skin	1	2014-T6	0.312	–	Replace
	12225-0042	• • • • Splice, Fwd, Lower Wing Skin	1	2014-T6	0.125	–	Replace
	12225-0043	• • • • Splice, Aft, Lower Wing Skin	1	2014-T4	0.270	–	Replace
50	12225-0057	• • Leading Edge Instl.	29	–	–	–	–
	2422039	• • • Fairing Assy.	29	–	–	–	Replace
	2422039	• • • • Fairing	29	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • Doubler (2 ea.)	29	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Doubler	29	2024-T6 Clad	0.040	–	*Replace*
	2422039	• • • • Splice	29	2014-T6 Clad	0.071	–	Replace
	2422036	• • • • Stiffener	29	S-699	–	–	Replace
	12225-0057	• • • Bracket Assy. (2 ea.)	29	–	–	–	Replace
	12225-0057	• • • • Bracket	29	6061-T6	0.063	–	Replace
	12225-0057	• • • Bracket	29	6061-T6	0.050	–	Replace
	12225-0057	• • • Angle (3 ea.)	29	6061-T6	0.040	–	Replace
	12225-0057	• • • Closure	29	6061-T42	0.040	–	Replace
	12225-0057	• • • Baffle (3 ea.)	29	6061-T6	0.040	–	Replace
	12225-0057	• • • Filler	29	6061-T6	0.063	–	Replace
	12225-0057	• • • Filler	29	6061-T6	0.080	–	Replace
	12225-0057	• • • Clip	29	6061-T6	0.040	–	Replace
	12225-0047	• • • Fairing Assy.	29	–	–	–	Replace
	12225-0047	• • • • Fairing	29	2024-T3	0.063	–	*Replace*
	12225-0047	• • • • Splice	29	2014-T6	0.071	–	Replace
	12225-0047	• • • • Stiffener	29	S-699	–	–	Replace
	12225-0047	• • • Skin, L.E.	29	6061-T6	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0047	• • • Support Assy.	29	–	–	–	*Replace*
	12225-0047	• • • • Angle (2 ea.)	29	2024-T3	0.063	–	Replace
	12225-0047	• • • Spar Assy.	29	–	–	–	Replace
	12225-0047	• • • • Spar	29	2024-T3	0.063	–	*Replace*
	12225-0047	• • • • Stiffener (5 ea.)	29	S-571	–	–	Replace
	2422029	• • • Skin Assy.	29	–	–	–	Replace
	2422029	• • • • Skin (2 ea.)	29	6061-T6	0.063	–	Replace
	2422029	• • • • Doubler	29	6061-T6	0.063	–	Replace
	2822033	• • • Channel (10 ea.)	29	2024-T42	0.025	–	Replace
	2822034	• • • Support	29	2024-T42	0.063	–	Replace
	12225-0057	• • • Rib	29	6061-T6	0.071	–	Replace
	12225-0057	• • • Bumper	29	Sil. Sponge	0.250	–	Replace
	2422041	• • • Support Assy.	29	–	–	–	Replace
	2422041	• • • • Support (3 ea.)	29	2024-0	0.063	–	Replace
	2422041	• • • • Slice	29	2024-T3	0.050	–	Replace
	12225-0057	• • • Bracket Assy. (9 ea.)	29	–	–	–	Replace
	12225-0057	• • • • Bracket	29	6061-T6	0.040	–	Replace
	12225-0057	• • • Attach Rib Assy.	29	–	–	–	Replace
	12225-0057	• • • • Attach Rib	29	6061-0	0.063	–	Replace
	12225-0057	• • • • Vent Tube Assy.	29	–	–	–	Replace
	12225-0057	• • • • • Tube	29	6061-T6	0.035	–	Replace
	12225-0057	• • • • • Flange	29	6061-0	0.080	–	Replace
	12225-0057	• • • Tube Assy.	29	–	–	–	Replace
	12225-0057	• • • • Tube (2 ea.)	29	6061-T6	0.035	–	Replace
	2822033	• • • • Clip	29	6061-T4	0.040	–	Replace
	12225-0057	• • • • *Plug*	*29*	*5052-0*	*0.040*	–	*Replace*
	12225-0057	• • • • Reducer (3 ea.)	29	6061-T6	0.040	–	Replace
	12225-0057	• • • • Tube	29	6061-T6	0.035	–	Replace
	2822032	• • • Sleeve Assy. (3 ea.)	29	–	–	–	Replace
	2822032	• • • • Plate Assy.	29	–	–	–	Replace
	2822032	• • • • • Plate (2 ea.)	29	5052-0	0.063	–	Replace
	2822032	• • • • • Tube	29	5052-0	0.035	–	Replace
	2822032	• • • Spacer	29	5052-0	0.063	–	Replace
	2822183	• • Leading Edge Instl.	30	–	–	–	–
	12225-0047	• • • Skin, L.E.	30	6061-T6	0.063	–	Replace
	12225-0047	• • • Fairing Assy.	30	–	–	–	Replace
	12225-0047	• • • • Fairing	30	2024-T3	0.063	–	Replace
	12225-0047	• • • • Splice	30	2014-T6	0.071	–	Replace
	12225-0047	• • • • Stiffener	30	S-699	–	–	Replace
	12225-0047	• • • Support Assy.	30	–	–	–	Replace
	12225-0047	• • • • Angle (2 ea.)	30	2024-T3	0.063	–	Replace
	2422029	• • • Skin Assy., L.E.	30	–	–	–	Replace
	2422029	• • • • *Skin (2 ea.)*	30	6061-T6	0.063	–	Replace
	2422029	• • • • Doubler	30	6061-T6	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422034	• • • Bracket Assy.	30	–	–	–	Replace
	2422034	• • • • Angle (2 ea.)	30	2024-T3	0.063	–	Replace
	2422034	• • • • Clip	30	2024-T3	0.050	–	Replace
	2422039	• • • Fairing Assy.	30	–	–	–	Replace
	2422039	• • • • Fairing	30	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • Doubler (2 ea.)	30	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Doubler	30	2024-T6 Clad	0.040	–	Replace
	2422039	• • • • Splice	30	2014-T6 Clad	0.071	–	Replace
	2422036	• • • • Stiffener	30	S-699	–	–	Replace
	2422041	• • • Support Assy.	30	–	–	–	Replace
	2422041	• • • • Support	30	2024-T3	0.063	–	Replace
	2422041	• • • Support Assy.	30	–	–	–	Replace
	2422041	• • • • Support (3 ea.)	30	2024-T3	0.063	–	Replace
	2422041	• • • • Slice	30	2024-T3	0.050	–	Replace
	2422043	• • • Filler	30	2024-T3	0.063	–	Replace
	2822181	• • • Closure	30	6061-T42	0.040	–	Replace
	2819057	• • Anti-Ice Instl.	30	–	–	–	–
	2819058	• • • Bracket Assy. (11 ea.)	30	–	–	–	Replace
	2819058	• • • • Bracket	30	6061-T62	0.040	–	Replace
	2819058	• • • Rib	30	6061-T62	0.071	–	Replace
	2819058	• • • Attach Rib Assy.	30	–	–	–	Replace
	2819058	• • • • Attach Rib	30	6061-T62	0.063	–	Replace
	2819058	• • • Clip	30	6061-T6	0.040	–	Replace
	2819058	• • • Tube Assy.	30	–	–	–	Replace
	2819058	• • • • Tube (4 ea.)	30	6061-T62	0.035	–	Replace
	2819058	• • • • Reducer (3 ea.)	30	6061-T62	0.040	–	Replace
	2819058	• • • • Plug	30	5052-0	0.035	–	Replace
	2819058	• • • Bracket	30	6061-T6	0.050	–	Replace
	2819058	• • • Angle (3 ea.)	30	6061-T6	0.040	–	Replace
	2819058	• • • Baffle (3 ea.)	30	6061-T6	0.040	–	Replace
	2822032	• • • Sleeve Assy. (5 ea.)	30	–	–	–	Replace
	2822032	• • • • Plate Assy.	29	–	–	–	Replace
	2822032	• • • • • Plate (2 ea.)	29	5052-0	0.063	–	Replace
	2822032	• • • • • Tube	29	5052-0	0.035	–	Replace
	2822033	• • • Channel	30	2024-T42	0.025	–	Replace
51	12225-0022	• • NAV Light Structure	1	–	–	–	–
	12225-0022	• • • Skin (2 ea.)	1	6061-T6	0.063	–	Replace
	12225-0022	• • • Rib, Removable	31	6061-T6	0.063	–	Replace
	12225-0022	• • • Rib, Lens	1	6061-T6	0.063	–	Replace
	12225-0022	• • • Rib, Closure (2 ea.)	1	6061-T6	0.063	–	Replace
	12225-0022	• • • Clip (2 ea.)	1	2024-T3	0.063	–	Replace
	12225-0022	• • • Spacer (2 ea.)	1	2024-T42	0.063	–	Replace
	12225-0022	• • • Spacer	1	2024-T42	0.025	–	Replace
52	2620000	• • Identification Plate	1	S-905	–	–	Replace
	2322550	• • Gap Closure Instl.	1	–	–	–	–

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
53	2322550	• • • Rib Assy.	1	–	–	–	–
	2322550	• • • • Rib	1	2024-T42 Clad	0.050	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Angle, Pnl Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2322550	• • • Door	1	2024-T3 Clad	0.090	–	Replace
	2322550	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2322521	• • Rib Instl., Flap Slot Inbd Closing	1	–	–	–	–
54	2322521	• • • Rib	1	2024-T42 Clad	0.040	–	Replace
	2312039	• • • Bracket Assy. (RH Only)	1	–	–	–	Replace
	2312039	• • • • Bracket	1	2024-T3	0.032	–	Replace
	2322555	• Vortex Generator Instl., LH & RH	2	–	–	–	Replace
55	2322555	• • Blade, Vortex Generators	2	S-621	–	F1	Replace
	2322571	• • Blade, Vortex Generators	2	S-707	–	F1	Replace
56	12225-0106	• Doubler, LH & RH	2	2014-T3	0.100	–	Replace
	2822035	• Stall Fence, (WS 185.58) LH & RH	3	–	–	–	–
57	2822035	• • Stall Fence Assy., Fwd	3	–	–	–	–
	2822035	• • Stall Fence	3	6061-T6	0.160	–	Replace
	2822035	• • Plate	3	6061-T6	0.062	–	Replace
	2822035	• Stall Fence Assy., Lwr LH & RH	3	S-5078	–	–	Replace
	2822035	• Stall Fence Assy., Ctr LH & RH	3	S-5078	–	–	Replace
	2822035	• Stall Fence Assy., Aft LH & RH	3	S-5078	–	–	Replace
	5422169	• Wing Fence, Leading Edge, LH & RH	3	–	–	–	–
58	5422159	• Stall Fence Assy.	3	–	–	–	Replace
	5422159	• • Stall Fence	3	6061-T6	0.125	–	Replace
	5422159	• • Attach Plate	3	6061-T6	0.063	–	Replace
	5422157	• Stall Strip Instl., (WS 102.2) LH & RH	3	–	–	–	–
59	5422156	• • Stall Strip	3	6061-T6	0.250	–	Replace
	5422158	• Stall Strip Instl., LH & RH	3	–	–	–	–

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
60	5422002	• • Stall Strip (WS 100.08 & 203.0)	3	6061-T6	0.090	–	Replace
	3122002	• • Stall Strip (WS 238.8)	3	6061-T6	0.312	–	Replace
	3122003	• Stall Strip Instl., (WS 148.15) LH & RH	3	–	–	–	–
61	5422002	• • Stall Triangle	3	6061-T6	0.032	–	Replace
	2422086	• Stall Fence Instl.	3	–	–	–	–
62	2422086	• • Fence Assy.	3	–	–	–	–
	2422086	• • • Fence	3	6061-T6	0.160	–	Replace
	2422086	• • • Attach Plate	3	6061-T6	0.063	–	Replace
	2422086	• • • Fence (3 ea.)	3	S-5078	–	–	Replace
	2422117	Drain Instl., Wing Center Section	2	–	–	–	–
	2422117	• Clip	2	2024-T42 Clad	0.032	–	Replace
	2422116	• Drain Flange Weld Assy.	2	–	–	–	–
	2422116	• • Washer	2	5052-0	0.063	–	Replace
	2422116	• • Elbow	2	5052-0 Tubing	0.063	–	Replace

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CODES	EFFECTIVITIES
1	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
2	28-001 THRU 28-005; 29-001 THRU 29-004
3	31-001 AND SUBSEQUENT.
4	28-001 THRU 28-004; 29-001 THRU 29-002; 31-001 AND SUBSEQUENT
5	31-001 THRU 31-046
6	31-047 AND SUBSEQUENT
7	DELETED
8	29-002 THRU 29-004; 31-001 AND SUBSEQUENT
9	28-001 THRU 28-005; 29-001
10	28-001 THRU 28-004; 29-001
11	28-005; 29-002 THRU 29-004
12	31-001 THRU 31-013
13	31-043 AND SUBSEQUENT
14	28-004, 28-005; 29-001
15	28-004, 28-005; 29-001; 31-001 AND SUBSEQUENT
16	28-001 THRU 28-005; 29-001 THRU 29-003
17	29-004; 31-001 AND SUBSEQUENT
18	DELETED
19	31-001 THRU 31-042, 31-058 AND SUBSEQUENT
20	31-043 THRU 31-057
21	31-001 THRU 31-014
22	31-015 THRU 31-042, 31-058 AND SUBSEQUENT
23	28-005; 29-002 THRU 29-004; 31-001 AND SUBSEQUENT
24	28-001 THRU 28-005; 29-001 THRU 29-004; 31-014 AND SUBSEQUENT
25	31-001 THRU 31-013
26	29-001 THRU 29-004; 31-001 AND SUBSEQUENT
27	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 THRU 31-048
28	31-049 AND SUBSEQUENT
29	28-001 THRU 28-004; 29-001 THRU 29-002
30	29-003 AND 29-004; 31-001 AND SUBSEQUENT
31	31-013 THRU 31-020
32	28-001 THRU 28-003
33	28-004; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
34	28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
35	28-004 AND 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
36	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 THRU 31-088
37	31-089 AND SUBSEQUENT
38	31-001 THRU 31-088

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NOTES

1. Chem Film per 51-30-04, Protective Treatment of Structural Materials.

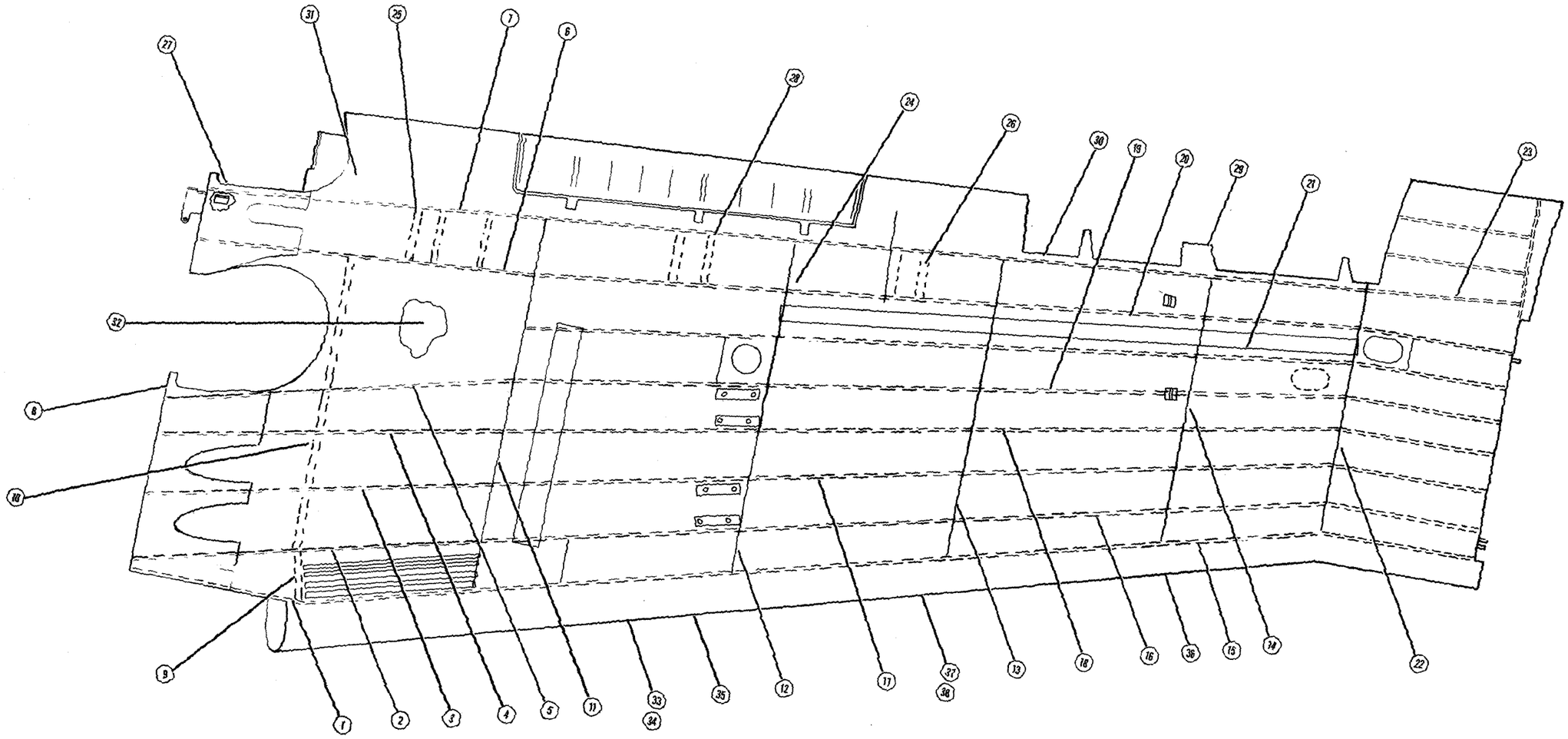
2. Finish F4-6 and apply top coat of 6160 Matterhorn White Alumigrip Urethane Enamel.

3. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1, Class 1 or Class 2, 1145-H19 aluminum sheet.

4. Condition Normalized.

5. Per MIL-P-15035

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2620000	Wing Assembly	1	–	–	–	–
	2620000	• Wing Structural Assy., LH & RH	1	–	–	–	–
1	2322044	• • Splice Instl., Spar No. 1	1	–	–	–	–
	2322044	• • • Angle, Upper	1	2024-T42 Clad	0.125	–	Replace
	2322044	• • • Angle, Lower	1	2024-T42 Clad	0.125	–	Replace
	2322044	• • • Angle, Upper	1	2024-T42 Clad	0.080	–	Replace
	2322044	• • • Angle, Lower	1	2024-T42 Clad	0.080	–	Replace
	2322044	• • • Filler, Upper & Lower	1	2024-T3 Clad	0.080	–	Replace
	2322044	• • • Attach Angle	1	2024-T42 Clad	0.063	–	Replace
	2322044	• • • Splice Angle, Lower	1	2024-T42 Clad	0.080	–	Replace
	2322044	• • • Splice Angle, Upper	1	2024-T42 Clad	0.080	–	Replace
2	2322080	• • Spar Assy., No. 2 Inboard	1	–	–	–	Replace
	2322080	• • • Spar Cap, Lower	1	S-622	–	F4-4	Replace
	2322080	• • • Spar Cap, Upper	1	S-623	–	F4-4	Replace
	2322080	• • • Doubler (2 ea.)	1	2024-T3 Clad	0.063	F4-4	Replace
	2322080	• • • Web	1	2024-T3 Clad	0.080	F4-4	Replace
	2322080	• • • Angle (3 ea.)	1	S-512	–	F4-4	Replace
3	2322100	• • Spar Assy., No. 3 Inboard	1	–	–	–	–
	2322100	• • • Spar Cap, Upper	1	S-527	–	–	Replace
	2322100	• • • Spar Cap, Lower	1	S-526	–	–	Replace
	2322100	• • • Doubler	1	2024-T3 Clad	0.100	–	Replace
	2322100	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2322100	• • • Angle	1	S-512	–	–	Replace
	2322100	• • • Angle	1	S-512	–	–	Replace
	2322100	• • • Angle	1	S-512	–	–	Replace
	2322100	• • • Angle	1	S-512	–	–	Replace
	2322100	• • • Angle	1	S-512	–	–	Replace
4	2322120	• • Spar Assy., No. 4 Inboard	1	–	–	–	–
	2322120	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2322120	• • • Spar Cap, Upper	1	S-525	–	–	Replace
	2322120	• • • Spar Cap, Lower	1	S-524	–	–	Replace
	2322120	• • • Doubler	1	2024-T3 Clad	0.063	–	Replace
	2322120	• • • Stiffener (7 ea.)	1	S-571	–	F4-4	Replace
	2622388	• • • Attach Angle, Spar to Rib	1	S-545	–	–	Replace
5	2322140	• • Spar Assy., No. 5 Inboard	1	–	–	–	–
	2322140	• • • Web	1	2024-T3 Clad	0.100	–	Replace
	2322140	• • • Filler	1	2024-T3 Clad	0.125	–	Replace
	2322142	• • • Spar Cap, Lower	1	S-535	–	–	Replace
	2322140	• • • Access Cover (2 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2322146	• • • Fitting, Forward Main Gear	1	–	–	–	51-71-00
	2322141	• • • Spar Cap, Upper	1	S-534	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
6	2322203	• • Spar Assy., No. 7 Inboard	1	–	–	–	–
	2322203	• • • Web	1	2024-T3 Clad	0.100	–	Replace
	2322203	• • • Spar Cap, Upper	1	S-516	–	–	Replace
	2322203	• • • Spar Cap, Lower	1	S-517	–	–	Replace
	2322203	• • • Doubler	1	2024-T42 Clad	0.080	–	Replace
	2322203	• • • Cover (2 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2322203	• • • Doubler	1	2024-T42 Clad	0.080	–	Replace
	2322203	• • • Filler	1	2024-T3 Clad	0.160	–	Replace
	2322203	• • • Support Assy.	1	–	–	–	–
	2322203	• • • • Support, Upper	1	2024-T42 Clad	0.080	–	Replace
	2322203	• • • • Fairlead	1	Phenolic [5]	3/16	–	Replace
	2322203	• • • • Support, Clamp	1	2024-T42 Clad	0.063	–	Replace
	2322203	• • • Angle Reinforcing (2 ea.)	1	2024-T42 Clad	0.100	–	Replace
	2322204	• • • Support, Main Gear	1	–	–	–	51-71-00
	2322207	• • • Bracket, Switch	1	2024-T3 Clad	0.063	–	Replace
	2322203	• • • Cover	1	2024-T3 Clad	0.100	–	Replace
	2322203	• • • Support Assy., Lwr (RH Only)	1	–	–	–	–
	2322203	• • • • Support	1	2024-T42 Clad	0.080	–	51-71-00
	2322203	• • • • Fairlead	1	Phenolic [5]	1/8	–	Replace
7	2322212	• • Spar Assy., No. 8	1	–	–	–	–
	2322212	• • • Stop (2 ea.)	1	S-614	–	–	Replace
	2322212	• • • Cover Plate	1	2024-T3 Clad	0.100	–	Replace
	2322212	• • • Spar Web, Inboard	1	2024-T3 Clad	0.090	–	Replace
	2322212	• • • Stiffener (5ea.)	1	S-571	–	–	Replace
	2322212	• • • Filler	1	2024-T3 Clad	0.125	–	Replace
	2322212	• • • Plate	2	2024-T3 Clad	0.125	–	Replace
	2322212	• • • Plate	2	2024-T3 Clad	0.063	–	Replace
	2322212	• • • Doubler	1	2024-T3 Clad	0.100	–	Replace
	2322212	• • • Web, Outboard	1	–	–	–	Replace
	2422551	• • • Spar Cap, Upper	1	S-5091	–	–	Replace
	2422551	• • • Spar Cap, Lower	1	S-5091	–	–	Replace
	2322221	• • • Support, Gear Act. Pin, Aft	1	–	–	–	51-71-00
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • Angle	1	S-603	–	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2441007	• • • Bearing Plate	1	2024-T3 Clad	0.312	–	51-71-00
8	2622230	• • Rib Assy.	1	–	–	–	–
	2322230	• • • Stiffener (10 ea.)	1	S-512	–	–	Replace
	2322230	• • • Filler (6 ea.)	1	2024-T3 Clad	0.100	–	Replace
	2322230	• • • Rib Cap, Upper	1	S-599	–	–	Replace
	2322230	• • • Support	1	2024-T42	0.050	–	Replace
	2322230	• • • Attach Angle	1	S-603	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322230	• • • Rib Cap, Lower	1	S-600	–	–	Replace
	2322238	• • • Attach Angle (5 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2327014	• • • Bracket	1	S-520	–	–	Replace
	2627014	• • • Bracket Assy.	1	–	–	–	Replace
	2627014	• • • • Bracket	1	2024-T42 Clad	0.040	–	Replace
	2622230	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2322016	• • • Strip	1	2024-T3 Clad	0.063	–	Replace
	2322017	• • • Strip	1	2024-T3 Clad	0.063	–	Replace
	2322018	• • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2322063	• • • Strip	1	2024-T3 Clad	0.063	–	Replace
	2622230	• • • Attach Angle	1	S-603	–	–	Replace
9	2322293	• • Rib Assy.	1	–	–	–	–
	2322293	• • • Web	1	2024-T3 Clad	0.063	–	Replace
	2322293	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2322293	• • • Rib Cap, Upper	1	S-502	–	–	Replace
	2322293	• • • Rib Cap, Lower	1	S-502	–	–	Replace
	2322293	• • • Attach Angle (4 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322293	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2322293	• • • Stiffener	1	S-512	–	–	Replace
10	2322290	• • Rib Segment Assy.	1	–	–	–	–
	2322290	• • • Tee (2 ea.)	1	S-596	–	–	Replace
	2322290	• • • Web	1	2024-T42 Clad	0.100	–	Replace
	2322290	• • • Gusset	1	2024-T3 Clad	0.063	–	Replace
	2322290	• • • Stiffener	1	S-571	–	–	Replace
	2322290	• • • Tee	1	S-569	–	–	Replace
	2322290	• • Rib Segment Assy.	1	–	–	–	–
	2322290	• • • Tee (2 ea.)	1	S-596	–	–	Replace
	2322290	• • • Web	1	2024-T42 Clad	0.100	–	Replace
	2322290	• • • Angle	1	2024-T42 Clad	0.100	–	Replace
	2322290	• • • Stiffener	1	S-571	–	–	Replace
	2322290	• • Rib Segment Assy.	1	–	–	–	–
	2322290	• • • Tee	1	S-596	–	–	Replace
	2322290	• • • Tee	1	S-597	–	–	Replace
	2322290	• • • Tee	1	S-598	–	–	Replace
	2322290	• • • Filler	1	2024-T3 Clad	0.160	–	Replace
	2422549	• • • Fairlead	3	Phenolic [5]	0.125	–	Replace
	2322290	• • • Fairlead	32	Phenolic [5]	0.125	–	Replace
	2322290	• • • Web	1	2024-T42 Clad	0.080	–	Replace
	2322290	• • • Tee	1	S-642	–	–	Replace
	2322290	• • • Fairlead	1	Phenolic [5]	0.125	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322290	• • • Rib Segment Assy.	1	–	–	–	–
	2322290	• • • • Web	1	2024-T42 Clad	0.125	–	Replace
	2322290	• • • • Tee (2 ea.)	1	S-596	–	–	Replace
	2322275	• • • Fitting	1	–	–	–	51-71-00
	2322281	• • • Fitting	1	–	–	–	51-71-00
	2322282	• • • Fitting	1	–	–	–	51-71-00
	2322287	• • • Filler	1	2025-T3 Clad	0.100	–	51-71-00
	2322291	• • • Fitting	1	–	–	–	Replace
	2322292	• • • Fitting	1	–	–	–	Replace
11	2322320	• • Rib Assy., WS 53.04	1	–	–	–	–
	2322320	• • • Filler (5 ea.)	1	2024-T3 Clad	0.160	–	Replace
	2322320	• • • Filler	1	2024-T3 Clad	0.125	–	Replace
	2322320	• • • Spar Tie Angle (12 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322320	• • • Fairlead	1	Phenolic [5]	3/16	–	Replace
	2322320	• • • Web, Forward	1	2024-T3 Clad	0.080	–	Replace
	2322321	• • • Rib Cap, Upper	1	S-592	–	–	Replace
	2322321	• • • Rib Cap, Lower	1	S-592	–	–	Replace
	2322322	• • • Bracket	1	6061-T6 Clad	0.063	–	Replace
	2422549	• • • Fairlead	1	Phenolic [5]	0.125	–	Replace
	2322320	• • • Stiffener	1	S-571	–	–	Replace
	2322320	• • • Stiffener	1	S-571	–	–	Replace
	2322320	• • • Web	1	2024-T3 Clad	0.160	–	Replace
	2322330	• • Rib Instl., WS 92.52	1	–	–	–	–
12	2322330	• • • Rib Segment	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Fairlead	1	Phenolic [5]	0.188	–	Replace
	2322330	• • • Angle (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Rib Segment (6 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2322340	• • Rib Instl., WS 125.00	1	–	–	–	–
13	2322340	• • • Rib Segment	1	2024-T42 Clad	0.071	–	Replace
	2322340	• • • Angle (2 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322340	• • • Rib Segment (7 ea.)	1	2024-T42 Clad	0.071	–	Replace
	2322330	• • • Fairlead	1	Phenolic [5]	0.188	–	Replace
	S-150-1	• • • Bracket	1	–	–	–	Replace
	2322340	• • • Clip	33	2024-T42	0.071	–	Replace
	2322350	• • Rib Instl., WS 157.48	1	–	–	–	–
14	2322350	• • • Rib Segment (3 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2322350	• • • Angle (2 ea.)	1	2024-T42 Clad	0.071	F4-4	Replace
	2322350	• • • Angle	34	2024-T42 Clad	0.071	F4-4	Replace
	2322350	• • • Rib Segment (4 ea.)	1	2024-T42 Clad	0.063	F4-4	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
15	2322564	• • Spar Assy., No. 1 Outboard	1	–	–	–	–
	2322564	• • • Spar	1	2024-T3 Clad	0.080	–	Replace
	2322564	• • • Doubler (2 ea.)	4	2024-T3 Clad	0.080	–	Replace
	2484039	• • • Cover Assy. (2 ea.)	4	–	–	–	Replace
	2484039	• • • • Cover	4	2024-T3 Clad	0.063	–	Replace
	2622040	• • • Cover	5	2024-T3 Clad	0.080	–	Replace
	2622040	• • • Doubler Assy.	5	–	–	–	Replace
	2622040	• • • • Doubler	5	2024-T3 Clad	0.080	–	Replace
	2622376	• • • Angle, Spar Attach	1	2024-T42 Clad	0.080	–	Replace
	2622381	• • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • Angle	1	2024-T42 Clad	0.080	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2322257	• • • Stiffener	6	S-571	–	–	Replace
	2322257	• • • Stiffener (11 ea.)	1	S-571	–	–	Replace
16	2322565	• • Spar Assy., No. 2 Outboard	1	–	–	–	–
	2322257	• • • Stiffener (4 ea.)	1	S-571	–	–	Replace
	2322258	• • • Doubler Plate (9 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.100	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2322565	• • • Spar	1	2024-T4 Clad	–	–	Replace
	2322565	• • • Angle	7	2024-T42 Clad	0.080	–	Replace
	2322565	• • • Angle	8	2024-T42 Clad	0.080	–	Replace
	2622388	• • • Channel	1	2024-T42 Clad	0.080	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2322257	• • • Stiffener	9	S-571	–	–	Replace
	2622388	• • • Channel	8	2024-0 Clad	0.080	–	Replace
	2622032	• • • Doubler	9	2024-T3 Clad	0.090	–	Replace
	2622388	• • • Shim	9	2024-T3	0.020	–	Replace
17	2322566	• • Spar Assy., No. 3 Outboard	1	–	–	–	–
	2322566	• • • Spar	1	2024-T5 Clad	–	–	Replace
	2322566	• • • Angle	1	2024-T42 Clad	0.080	–	Replace
	2322257	• • • Stiffener (14 ea.)	1	S-571	–	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	Replace
	2622376	• • • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2622388	• • • Channel (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.100	–	Replace
	2622388	• • • Shim	9	2024-T3 Clad	0.020	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
18	2322567	• • Spar Assy., No. 4 Outboard	1	–	–	–	–
	2322567	• • • Angle	1	2024-T42 Clad	0.080	–	Replace
	2322567	• • • Spar	1	2024-T4 Clad	–	–	Replace
	2322257	• • • Stiffener (16 ea.)	1	S-571	–	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	Replace
	2622376	• • • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.100	–	Replace
	2622388	• • • Channel (2 ea.)	1	2024-T42 Clad	0.080	–	Replace
	2622388	• • • Shim	9	2024-T3 Clad	0.020	–	Replace
	2622032	• • • Doubler	9	2024-T3 Clad	0.090	–	Replace
	2622032	• • • Filler	9	2024-T3 Clad	0.090	–	Replace
19	2322568	• • Spar Assy., No. 5 Outboard	1	–	–	–	–
	2322568	• • • Angle	1	2024-T42 Clad	0.080	–	Replace
	2322568	• • • Spar	1	2024-T4 Clad	–	–	Replace
	2322568	• • • Shim, Laminated (Max. 0.020)	1	▷2◁	–	–	Replace
	2322257	• • • Stiffener (15 ea.)	1	S-571	–	–	Replace
	2322257	• • • Stiffener (2 ea.)	6	S-571	–	–	Replace
	2622040	• • • Doubler	5	2024-T3 Clad	0.080	F4-4	Replace
	2622040	• • • Cover	5	2024-T3 Clad	0.040	F4-4	Replace
	2622040	• • • Angle	5	2024-0 Clad	0.080	–	Replace
	2322568	• • • Doubler	10	2024-T3 Clad	0.050	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2622390	• • • Fitting	1	2024-T3 Clad	1.600	–	Replace
	2622388	• • • Channel	1	2024-0 Clad	0.080	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.100	–	Replace
	2622390	• • • Fitting	1	2024-T3	1.600	–	Replace
20	2322569	• • Spar Assy., No. 6 Outboard	1	–	–	–	–
	2322569	• • • Spar	1	2024-T4 Clad	–	–	Replace
	2322257	• • • Stiffener	11	S-571	–	–	Replace
	2322257	• • • Stiffener (11 ea.)	1	S-571	–	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2622388	• • • Shim	9	2024-T3 Clad	0.020	–	Replace
	2322257	• • • Stiffener	9	S-571	–	–	Replace
	2622388	• • • Channel	1	2024-T42	0.080	–	Replace
	2622388	• • • Doubler Plate	1	2024-T3 Clad	0.050	–	Replace
	2622388	• • • Filler (2 ea.)	1	2024-T42 Clad	0.080	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
21	2322570	• • Spar Assy., No. 7 Outboard	1	–	–	–	–
	2322570	• • • Spar	1	2024-T4	–	–	Replace
	2622390	• • • Fitting, Spar No. 7	1	–	–	–	Replace
	2322257	• • • Stiffener (13 ea.)	1	S-571	–	–	Replace
	2622388	• • • Shim	9	2024-T3 Clad	0.020	–	Replace
	2327001	• • • Clip	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.100	–	Replace
	2622388	• • • Filler	1	2024-T3 Clad	0.080	–	Replace
	2622390	• • • Fitting, Spar No. 7	1	2024-T3 Clad	1.600	–	Replace
	2622390	• • • Fitting, Spar No. 7	1	2024-T3 Clad	1.600	–	Replace
	2622388	• • • Channel	1	2024-T42 Clad	0.080	–	Replace
	2622374	• • Rib Instl., WS 181.10	1	–	–	–	–
22	2622374	• • • Web	1	2024-T3 Clad	0.080	–	Replace
	2622374	• • • Vent Tube (0.250 OD x 0.032 Wall)	1	3003-0	–	–	Replace
	2622374	• • • Rib Cap, Upper	1	S-727	–	–	Replace
	2622374	• • • Rib Cap, Lower	1	S-727	–	–	Replace
23	2622370	• • Wing Extension Assy.	1	–	–	–	–
	2622378	• • • Spar Assy., No. 1	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.063	–	Replace
	2622378	• • • • Cover (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622376	• • • • Angle Assy., Spar Attach	1	–	–	–	–
	2622376	• • • • • • Angle	1	2024-T42 Clad	0.063	–	Replace
	2622378	• • • Spar Assy., No. 2	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.040	–	Replace
	2622378	• • • • Stiffener	1	S-512	–	–	Replace
	2322257	• • • • Stiffener	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace
	2622378	• • • Spar Assy., No. 3	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.040	–	Replace
	2322257	• • • • Stiffener	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace
	2622378	• • • Spar Assy., No. 4	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.040	–	Replace
	2322257	• • • • Stiffener	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace
	2622378	• • • • Spar Assy., No. 5	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.040	–	Replace
	2322257	• • • • Stiffener	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2622378	• • • Spar Assy., No. 6	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.040	–	Replace
	2322257	• • • • Stiffener	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace
	2622378	• • • Spar Assy., No. 7	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.050	–	Replace
	2322257	• • • • Stiffener	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace
	2622378	• • • Spar Assy., No. 8	1	–	–	–	–
	2622378	• • • • Spar	1	2024-T42 Clad	0.032	–	Replace
	2322257	• • • • Stiffener (2 ea.)	1	S-571	–	–	Replace
	2622376	• • • • Angle, Spar Attach	1	2024-T42 Clad	0.050	–	Replace
	2622375	• • • Rib Instl., WS 205.147	1	–	–	–	–
	2622375	• • • • Rib Cap, Lower	1	S-727	–	–	Replace
	2622375	• • • • Web	1	2024-T3 Clad	0.080	–	Replace
	2622375	• • • • Rib Cap, Upper	1	S-727	–	–	Replace
	2622375	• • • • Shim (Max. 0.094) (2 ea.)	1	2	–	–	Replace
	2322372	• • • • Fitting, Tip Tank Fwd Attach	1	–	–	–	51-71-00
	2322373	• • • • Fitting, Tip Tank Aft Attach	1	–	–	–	51-71-00
	2622376	• • • • Angle, Spar Attach (9 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2622376	• • • • Filler (A/R)	1	2024-T3 Clad	0.090	–	Replace
	2322371	• • • • Clamping Ring (2 ea.)	1	2024-T3 Clad	0.160	–	Replace
	2622376	• • • • Shim (Max. 0.040) (2 ea.)	1	2	–	–	Replace
	2622376	• • • • Filler	1	2024-T3 Clad	0.090	–	Replace
	2622371	• • • Skin Instl., Upper	1	–	–	–	–
	2622371	• • • • Skin, Upper	1	2014-T6 Clad	0.071	–	Replace
	2622371	• • • Skin Instl., Lower	1	–	–	–	–
	2622371	• • • • Skin, Lower 4	1	2014-T6 Clad	0.090	–	Replace
	2622384	• • • • Access Door Assy.	1	–	–	–	–
	2622384	• • • • • Door	1	2024-T3 Clad	0.090	–	Replace
	2622384	• • • • • Doubler	1	2024-T3 Clad	0.071	–	Replace
	2622384	• • • • Access Door Assy.	1	–	–	–	–
	2622384	• • • • • Door	1	2024-T3 Clad	0.090	–	Replace
	2622384	• • • • • Doubler	1	2024-T3 Clad	0.071	–	Replace
	2622384	• • • • • Bracket	1	2024-T3 Clad	0.050	–	Replace
	2622372	• • • Leading Edge Inst.	12	–	–	–	–
	2622372	• • • • Skin	12	6061-0	0.063	F14-1int F1 ext	Replace
	2622372	• • • • Access Panel	12	6061-0	0.063	F14-1int F1 ext	Replace
	2622373	• • • • Rib	12	2024-T42 Clad	0.050	F4-1	Replace
	2514304	• • • • Scupper	12	6061-0	0.032	F14-1int F1 ext	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2622033	• • • Leading Edge Instl.	9	–	–	–	–
	2622035	• • • • Nose Rib	9	2024-T42 Clad	0.050	–	Replace
	2622034	• • • • Skin	9	6061-T6	0.063	–	Replace
	2422043	• • • • Filler	9	2024-T3 Clad	0.032	–	Replace
	2422043	• • • • Plate	9	2024-T3 Clad	0.063	–	Replace
	2422041	• • • • Support Assy.	9	–	–	–	–
	2422041	• • • • • Support	9	2024-0 Clad	0.063	–	Replace
	2422041	• • • • • Support	9	S-745	–	–	Replace
	2422039	• • • • Fairing Assy.	9	–	–	–	–
	2422039	• • • • • Fairing	9	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • • Doubler	9	2014-T6 Clad	0.071	–	Replace
	2422038	• • • • Scupper	9	6061-0	0.032	–	Replace
	2622380	• • • Trailing Edge Instl.	1	–	–	–	–
	2622382	• • • • Intercostal, Fwd	13	2024-T42 Clad	0.025	–	Replace
	2622382	• • • • Intercostal, Aft	13	2024-T42 Clad	0.025	–	Replace
	2622382	• • • • Intercostal, Fwd	14	2024-T42 Clad	0.032	–	Replace
	2622382	• • • • Intercostal, Aft	14	2024-T42 Clad	0.032	–	Replace
	2622382	• • • • Rib, Inboard	1	2024-T42 Clad	0.025	–	Replace
	2622382	• • • • Rib, Outboard	1	2024-T42 Clad	0.025	–	Replace
	2622382	• • • • Angle, Attach (3 ea.)	1	2024-T3 Clad	0.032	–	Replace
	2622382	• • • • Trailing Edge Filler	1	S-639	–	–	Replace
	2622382	• • • • Shim (Max. 0.040)	1	2	–	–	Replace
	2622383	• • • • Skin, Upper	1	2024-T3	0.071	–	Replace
	2622383	• • • • Skin, Lower	1	2024-T3	0.090	–	Replace
	2622379	• • • • Access Door Instl.	1	–	–	–	–
	2622384	• • • • • Door	1	2024-T3 Clad	0.032	–	Replace
	2325079	• • Support Instl., Flap Actuator	1	–	–	–	–
24	2325079	• • • Bracket Assy.	1	–	–	–	–
	2325079	• • • • Brace, Bracket End	35	S-534	–	F4-1	Replace
	2325079	• • • • Brace, Bracket End	36	S-5088	–	F4-1	Replace
	2325079	• • • • Fitting, Cylinder Attach	1	2024-T3 Clad	0.160	F4-1	51-70-00
	2325079	• • • • Bracket Support, Upper	1	2024-T42 Clad	0.063	F4-1	Replace
	2325079	• • • • Bracket Support, Lower	1	2024-T42 Clad	0.063	F4-1	Replace
	2322560	• • Rib Instl., Inboard Flap Track Support	1	–	–	–	–
25	2322560	• • • Rib Assy., Inner	1	–	–	–	–
	2322560	• • • • Rib, Inner	1	2024-T42 Clad	0.090	F4-1	Replace
	2322560	• • • • Fairlead, Inboard	1	Phenolic 5	0.188	F4-1	Replace
	2322560	• • • Rib Assy., Outer	1	–	–	–	–
	2322560	• • • Rib, Outer	1	2024-T42 Clad	0.090	F4-1	Replace
	2322560	• • • Fairlead, Inboard	1	Phenolic 5	0.188	F4-1	Replace
	2322560	• • Rib Instl., Outboard Flap Track Support	1	–	–	–	–

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
26	2322560	• • • Rib Assy., Inner	1	–	–	–	–
	2322560	• • • • Rib, Inner	1	2024-T42 Clad	0.063	–	Replace
	2322560	• • • • Fairlead, Outboard	1	Phenolic 5	0.188	–	Replace
	2322560	• • • Rib Assy., Outer	1	–	–	–	–
	2322560	• • • • Rib, Outer	1	2024-T42 Clad	0.063	–	Replace
	2322560	• • • • Fairlead, Outboard	1	Phenolic 5	0.188	–	Replace
	2322521	• • Rib Instl., Flap Slot Inbd Closing	1	–	–	–	–
27	2322521	• • • Rib	1	2024-T42 Clad	0.040	–	Replace
	2312039	• • • Bracket Assy. (RH Only)	15	–	–	–	Replace
	2312039	• • • • Bracket	15	2024-T3	0.032	–	Replace
	2322516	• • Bracket Instl., LH & RH, Spoiler Actuator	37	–	–	–	–
28	2322516	• • • Bracket Assy., LH & RH, Spoiler Actuator	37	–	–	–	Replace
	2322516	• • • • Weld Assy., LH & RH	37	–	–	–	Replace
	2322516	• • • • • Plate	37	2024-0 Clad	0.063	–	Replace
	2322516	• • • • • Bracket	37	2024-0 Clad	0.063	–	Replace
	2322516	• • • Fairlead (2 ea.)	37	Phenolic 5	3/16	–	Replace
	2322516	• • • Support Bracket, LH & RH (2 ea.)	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Support Angle, LH & RH	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Door, LH & RH	37	2024-T3 Clad	0.080	–	Replace
	2322516	• • • Support Bracket Assy. (LH Only)	37	–	–	–	–
	2322516	• • • • Support Bracket	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Support Bracket (LH Only)	37	2024-T42 Clad	0.063	–	Replace
	2422513	• • • Fitting Assy.	37	–	–	–	51-71-00
	2322516	• • • Bracket Assy., LH & RH	37	–	–	–	Replace
	2322516	• • • • Bracket, LH & RH	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • • Angle	37	2024-T42 Clad	0.063	–	Replace
	2322516	• • • • Stiffener	37	S-735	0.063	–	Replace
	2322516	• • • Plate	37	2024-T3 Clad	0.063	–	Replace
	2322516	• • • Gusset, LH & RH	37	2024-T3 Clad	0.063	F4-4	Replace
	2322516	• • Bracket Instl., LH & RH, Spoiler Actuator	38	–	–	–	–
	2322516	• • • Fairlead (2 ea.)	38	Phenolic 5	3/16	–	Replace
	2322516	• • • Support Angle, LH & RH	38	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Door, LH & RH	38	2024-T3 Clad	0.080	–	Replace
	2422513	• • • Fitting Assy.	38	–	–	–	51-71-00
	2322516	• • • Bracket Assy., LH & RH	38	–	–	–	Replace
	2322516	• • • • Bracket, LH & RH	38	2024-T42 Clad	0.063	–	Replace
	2322516	• • • • Angle	38	2024-T42 Clad	0.063	–	Replace
	2322516	• • • Plate	38	2024-T3 Clad	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322516	• • • Gusset, LH & RH	38	2024-T3 Clad	0.063	F4-4	Replace
	6022501	• • • Fitting, LH & RH	38	7075-T7451 AL Sheet	2.500	F4-4	Replace
	6022511	• • • Fitting, LH & RH	38	7075-T7451 Bare Plate	3.000	F4-4	Replace
	6022512	• • • Bracket Assy., LH & RH	38	–	–	F4-4	Replace
	6022512	• • • • Bracket, LH & RH	38	2024-T42 Clad	0.063	F4-4	Replace
29	2322530	• • • Hinge Bracket Assy., Middle	1	–	–	–	51-71-00
	2322530	• • • • Stud	1	Hex Rod [3]	7/16	–	Replace
	2322530	• • • • Hinge Bracket, Middle Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Hinge Bracket, Middle Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Angle	1	S-549	–	–	Replace
	2322530	• • • • Plate	1	2024-T3 Clad	0.090	–	Replace
	2322530	• • • • Arm, Hinge, Middle	1	2024-T4	0.375	–	51-71-00
	2322530	• • • Hinge Bracket Assy., Outbd	1	–	–	–	51-71-00
	2322530	• • • • Hinge Bracket, Outbd Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Hinge Bracket, Outbd Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Arm, Hinge	1	2024-T4	–	–	51-71-00
	2322530	• • • Hinge Bracket Assy., Inbd	1	–	–	–	51-71-00
	2322530	• • • • Hinge Bracket, Inbd, Inner	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Hinge Bracket, Inbd, Outer	1	2024-T42 Clad	0.063	–	Replace
	2322530	• • • • Arm, Hinge	1	2024-T4	–	–	51-71-00
	2322550	• • Gap Closure Instl.	1	–	–	–	–
30	2322550	• • • Rib Assy.	1	–	–	–	–
	2322550	• • • • Rib	1	2024-T42 Clad	0.050	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Panel Assy.	1	–	–	–	–
	2322550	• • • • Panel	1	2024-T3 Clad	0.025	–	Replace
	2322550	• • • Angle, Panel Support (2 ea.)	1	2024-T42 Clad	0.050	–	Replace
	2322550	• • • Door	1	2024-T3 Clad	0.090	–	Replace
	2322550	• • • Angle	1	2024-T42 Clad	0.050	–	Replace
	2622010	• • Wing Skin Instl., Upper	1	–	–	–	–
31	2422028	• • • Wing Skin	1	–	–	–	Replace
	2322042	• • • Filler, Tapered	1	2024-T3	0.080	F4-4	Replace
	2322278	• • • Fitting	1	2014-T6	–	F3	Replace
	2327009	• • • Support	1	S-596	–	–	Replace
	2327038	• • • Bracket Assy.	1	–	–	–	–
	2327038	• • • • Bracket	1	2024-T42	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2622011	• • • Splice Instl.	1	–	–	–	–
	2622013	• • • • Splice, Fwd Upper Wing Skin	1	2014-T6	0.250	–	Replace
	2622014	• • • • Splice, Aft Upper Wing Skin	1	2014-T6	0.160	–	Replace
	2327038	• • • • Bracket Assy. (LH Only)	18	–	–	–	–
	2327038	• • • • • Bracket	1	2024-T42	0.063	–	Replace
	2622012	• • • Stiffener	1	S-736	–	–	Replace
	2622012	• • • Clip	1	2024-T42 Clad	0.125	–	Replace
	2622012	• • • Bracket Assy.	1	–	–	–	–
	2622012	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622012	• • • Bracket Assy.	1	–	–	–	–
	2622012	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622012	• • • Bracket Assy.	1	–	–	–	–
	2622012	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622012	• • • Stiffener (12 ea.)	1	S-734	–	–	Replace
	2622012	• • • Stiffener	1	S-736	–	–	Replace
	2322140	• • • Shim, Laminated (max. 0.032)	1	2	–	–	Replace
	2627018	• • • Bracket	1	2024-T3 Clad	0.050	–	Replace
	2622030	• • Wing Skin Instl., Lower	1	–	–	–	–
32	2322029	• • • Wing Skin 4	1	–	–	–	Replace
	2622030	• • • Shim	1	2024-T3 Clad	0.020	–	Replace
	2322042	• • • Filler, Tapered	1	–	–	–	Replace
	2622015	• • • Stiffener (4 ea.)	1	S-734	–	–	Replace
	2622015	*• • • Splice Angle*	*1*	*2024-T42 Clad*	*0.063*	–	*Replace*
	2622019	• • • Fitting	1	–	–	–	Replace
	2622020	• • • Fitting	1	–	–	–	Replace
	2622386	• • • Cover Instl., Access Holes	1	–	–	–	–
	2622386	• • • • Filler	1	2024-T3	0.190	–	Replace
	2326015	• • • • Bracket, Fuel Probe Support	1	2024-T42 Clad	0.050	–	Replace
	2422114	• • • • Door Instl., Wing Fuel Probe	1	–	–	–	–
	2422114	• • • • • Door Assy	1	–	–	–	–
	2422113	• • • • • • Door	1	2024-T3 Clad	0.160	–	Replace
	2326015	• • • • • • Bracket	1	2024-T42 Clad	0.050	–	Replace
	2622387	• • • • Cover, Access Hole	1	2024-T3 Clad	0.080	–	Replace
	2322259	• • • • Door (6 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2622387	• • • • Cover, Access Hole (5 ea.)	1	2024-T3 Clad	0.080	–	Replace
	2622389	• • • • Cover, Access Hole	1	2024-T3	0.090	–	Replace
	2322140	• • • Shim, Laminated (Max. 0.032)	1	2	–	–	Replace
	2622016	• • • Splice Instl.	1	–	–	–	–
	2622017	• • • • Splice, Fwd, Lower Wing Skin	1	2024-T4	0.312	–	Replace
	2622018	• • • • Splice, Aft, Lower Wing Skin	1	2024-T4	0.160	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2622015	• • • Stiffener Assy.	1	–	–	–	–
	2622015	• • • • Stiffener	1	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622015	• • • Stiffener Assy.	1	–	–	–	–
	2622015	• • • • Stiffener	1	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622015	• • • Stiffener Assy.	1	–	–	–	–
	2622015	• • • • Stiffener	1	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622015	• • • Stiffener Assy.	1	–	–	–	–
	2622015	• • • • Stiffener	1	S-734	–	–	Replace
	2622015	• • • • Angle (2 ea.)	1	2024-T42 Clad	0.063	–	Replace
	2622050	• • Leading Edge Instl.	19	–	–	–	–
33	2522050	• • • Leading Edge Assy.	19	–	–	–	–
	2322377	• • • • Skin, Outbd	19	6061-0	0.063	F4-1	Replace
	2322377	• • • • Skin, Middle	19	6961-0	0.063	F4-1	Replace
	2522050	• • • • Baffle Assy.	19	–	–	–	–
	2522050	• • • • • Baffle, Outbd	19	6061-T6	0.025	F4-1	Replace
	2522050	• • • • • Baffle, Indb	19	6061-T6	0.025	F4-1	Replace
	2522050	• • • • Tube Assy.	19	–	–	–	–
	2522050	• • • • • Tube, Anti-Ice	19	6061-T6	0.050	–	Replace
	2522050	• • • • • Plate, Tube End	19	6061-T6	0.050	–	Replace
	2522050	• • • • Rib, Inbd Auxiliary	19	2024-T41 Clad	0.050	F4-1	Replace
	2522050	• • • • Splice Plate	19	2024-T41	0.063	F4-1	Replace
	2522050	• • • • Clip	19	6061-T6	0.032	F4-1	Replace
	2322377	• • • • Panel, Access	19	6061-T6	0.063	–	Replace
	2622418	• • • Rib	19	2024-T42 Clad	0.050	F4-1	Replace
	2622373	• • • Rib	19	2024-T42 Clad	0.050	F4-1	Replace
	2322416	• • • Rib Assy.	19	–	–	–	–
	2322416	• • • • Rib	19	2024-T42 Clad	0.050	F4-6	Replace
	2422042	• • Leading Edge Instl.	20	–	–	–	–
34	2422030	• • • Leading Edge Assy.	20	–	–	–	–
	2422029	• • • • Skin Assy.	20	–	–	–	–
	2422029	• • • • • Skin (2 ea.)	20	6061-T6	0.063	–	Replace
	2422029	• • • • • Doubler	20	6061-T6	0.063	–	Replace
	2422031	• • • • Baffle	20	–	–	–	–
	2422031	• • • • • Baffle, Outbd	20	6061-T6	0.063	–	Replace
	2422031	• • • • • Baffle, Inbd	20	6061-T6	0.063	–	Replace
	2422032	• • • • • Rib	20	2024-T42 Clad	0.063	–	Replace
	2422032	• • • • Rib (7 ea.)	20	2024-T42 Clad	0.063	–	Replace
	2422038	• • • • Scupper	20	6061-0	0.025	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422050	• • • • Anti-Ice Instl.	20	–	–	–	–
	2522050	• • • • • Tube Assy.	20	–	–	–	–
	2522050	• • • • • • Plate, Tube End	20	6061-T6	0.050	–	Replace
	2522050	• • • • • • Tube, Anti-Icing	21	6061-T62	1.00	–	Replace
	2522050	• • • • • • Tube, Anti-Icing	20	6061-T6	1.00	–	Replace
	2422083	• • • • Baffle Rib Assy.	1	–	–	–	–
	2422083	• • • • • Rib	1	2024-T42 Clad	0.050	–	Replace
	2422083	• • • • • Angle	1	6061-T6 Bare	0.032	–	Replace
	2422030	• • • • Shim	1	2024-T3	0.063	–	Replace
	2422030	• • • • Shim	22	2024-T3 Clad	0.025	–	Replace
	2422039	• • • Fairing Assy.	1	–	–	–	–
	2422039	• • • • Splice Assy.	1	–	–	–	–
	2422039	• • • • • Splice	1	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Fairing	1	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • Doubler (2 ea.)	1	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Splice	1	2014-T6 Clad	0.071	–	Replace
	2422039	• • • • Doubler	1	2024-T3 Clad	0.040	–	Replace
	2422036	• • • • *Stiffener (2 ea.)*	1	S-699	–	–	*Replace*
	2422039	• • • • Fairing	1	2024-T3 Clad	0.063	–	Replace
	2422041	• • • Support Assy.	1	–	–	–	–
	2422041	• • • • Support (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2422043	• • • Filler	1	2024-T3	0.063	–	Replace
	2422078	• • • Splice Plate	1	2024-T42 Clad	0.063	–	Replace
	2422082	• • • Rib Assy.	1	–	–	–	–
	2422082	• • • • Rib	1	2024-T42 Clad	0.063	–	Replace
	2422041	• • • Support Assy.	1	–	–	–	–
	2422041	• • • • Support	1	S-744	–	–	Replace
	2422041	• • • • Support	1	2024-T3 Clad	0.063	–	*Replace*
	2422078	• • • Rib	1	2024-T42 Clad	0.050	–	Replace
	2422078	• • • Plate	20	2024-T42 Clad	0.063	–	Replace
	2422089	• *Stall Strip Instl., LH & RH*	28	–	–	–	–
35	2422089	• • Stall Strip	39	6061-T4 [6]	0.250	–	Replace
	6022003	• • Stall Strip	38	[7]	0.250	F21	Replace
	2422086	• Stall Fence Instl., LH & RH	23	–	–	–	–
36	2422086	• • Fence Assy.	23	–	–	–	–
	2422086	• • • Fence	23	6061-T6	0.160	–	Replace
	2422086	• • • Attach Plate	23	6061-T6	0.063	–	Replace
	2422086	• • Fence Assy.	24	–	–	–	–
	2422086	• • • Fence	24	6061-T6	0.160	–	Replace
	2422086	• • • Attach Plate	24	6061-T6	0.063	–	Replace
	2422086	• • Fence Assy.	26	–	–	–	–
	2422086	• • • Fence	26	6061-T6	0.160	–	Replace
	2422086	• • • Attach Plate	26	6061-T6	0.063	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422086	• • Fence	25	S-5078	–	–	–
	2422086	• • Fence (3 ea.)	27	S-5078	–	–	–
	2622399	• Trip Strip Instl., LH & RH	28	–	–	–	–
37	2422088	• • Trip Strips (3 ea.)	28	S-5075	–	–	Replace
	2422085	• Anti-Ice Instl., LH & RH	1	–	–	–	–
38	2422085	• • Insulation	1	Fiberglass matte	1/2	–	Replace
	2522050	• • Tube	1	5052-0	1/4	–	Replace
	2522050	• • Insulation	1	Fiberglass matte	1.00	–	Replace
	2522050	• • Reinforcement	1	3003-H14 Expanded	1/20.051	–	Replace
	2422548	• Upper Fairing Instl., LH & RH	1	–	–	–	–
	2422548	• • Fairing Assy.	1	–	–	–	–
	2422548	• • • Fairing	1	6061-T62	0.032	–	Replace
	2422035	• Fairing Instl., Wing Leading Edge, LH & RH	1	–	–	–	–
	2422033	• • Fairing	1	6061-T6	0.063	–	Replace
	2422034	• • Fairing Support	1	–	–	–	–
	2422034	• • • Angle (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2422034	• • Fairing Support	1	–	–	–	–
	2422034	• • • Angle (2 ea.)	1	2024-T3 Clad	0.063	–	Replace
	2322540	• Lower Fairing Instl., LH & RH	1	–	–	–	–
	2322540	• • Fairing (2 ea.)	1	2024-T42 Clad	0.032	–	Replace
	2322540	• • Splice Angle	1	2024-T42 Clad	0.040	–	Replace
	2322540	• • Seal Angle	1	2024-T42 Clad	0.050	–	Replace
	2322540	• • Door Seal (2 ea.)	1	S-306	–	–	Replace
	2322540	• • Bulkhead Assy.	1	–	–	–	–
	2322540	• • • Bulkhead	1	2024-T42 Clad	0.050	–	Replace
	2322540	• • Stiffener	1	2024-T42 Clad	0.032	–	Replace
	2322540	• • Bracket Assy.	1	–	–	–	–
	2322540	• • • Gap Cover	1	2024-T42 Clad	0.032	–	Replace
	2322540	• • Attach Angle	1	2024-T42 Clad	0.050	–	Replace
	2322540	• • Seal Angle	1	2024-T42 Clad	0.050	–	Replace
	2322540	• • Bulkhead Assy.	1	–	–	–	–
	2322540	• • • Bulkhead	1	2024-T42 Clad	0.050	–	Replace
	2322540	• • Attach Angle	1	2024-T42 Clad	0.050	–	Replace
	2322540	• • Splice Angle	1	2024-T42 Clad	0.040	–	Replace
	2620000	• Identification Plate	1	S905	–	–	Replace
	2622571	• Vortex Generator Instl.	29	–	–	–	Replace
	2322571	• • Blade, Vortex Generators	29	S707	–	1F1	Replace
	2322555	• • Blade, Vortex Generators	29	S621	–	1F1	Replace
	2618042	• Conduit, W/S 125 to 174	30	5052-0	0.035	–	Replace
	2328001	• Conduit, W/S 125 to 196	31	5052-0	0.035	–	Replace
	2627019	• Bracket Instl.	1	–	–	–	Replace
	2627019	• • Bracket	1	2024-T3 Clad	0.050	–	Replace
	2627019	• • Support (2 ea.)	1	6061-T4	0.040	–	Repalce

Wing Repair Index
Figure 1 (Sheet 16 of 18)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422117	Drain Instl., Wing Center Section	1	–	–	–	–
	2422117	• Clip	1	2024-T42 Clad	0.032	–	Replace
	2422116	• Drain Flange Weld Assy.	1	–	–	–	–
	2422116	• • Washer	1	5052-0	0.063	–	Replace
	2422116	• • Elbow	1	5052-0 Tubing	0.063	–	Replace

CODES	EFFECTIVITIES
1	35-002 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	35-088 AND SUBSEQUENT; 36-023 AND SUBSEQUENT
3	35-116 AND SUBSEQUENT; 36-033 AND SUBSEQUENT
4	35-414 AND SUBSEQUENT; 36-048 AND SUBSEQUENT
5	35-644 AND SUBSEQUENT; 36-059 AND SUBSEQUENT
6	35-002 THRU 35-643; 36-001 THRU 36-058
7	35-002 THRU 35-011; 36-001 THRU 36-006
8	35-012 AND SUBSEQUENT; 36-007 AND SUBSEQUENT
9	35-160 AND SUBSEQUENT; 36-039 AND SUBSEQUENT
10	35-669 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
11	35-002 THRU 35-083; 36-001 THRU 36-020
12	35-002 THRU 35-159; 36-001 THRU 36-038
13	35-002 THRU 35-045; 36-001 THRU 36-016
14	35-046 AND SUBSEQUENT; 36-017 AND SUBSEQUENT
15	35-117 THRU 35-140; 36-033 AND 36-034
16	35-637 AND SUBSEQUENT; 36-058 AND SUBSEQUENT
17	35-083 AND SUBSEQUENT; 36-022 AND SUBSEQUENT
18	35-664 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
19	35-002 THRU 35-066; 36-002 THRU 36-017
20	35-067 AND SUBSEQUENT; 36-018 AND SUBSEQUENT
21	35-548 THRU 35-588, 35-601 AND SUBSEQUENT; 36-054, 36-056 AND SUBSEQUENT
22	35-117 AND SUBSEQUENT; 36-033 AND SUBSEQUENT
23	35-279 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
24	35-279 THRU 35-307
25	35-308 THRU 35-324; 36-045
26	35-279 THRU 35-324; 36-045
27	35-325 AND SUBSEQUENT; 36-046 AND SUBSEQUENT
28	35-669 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
29	35-002 THRU 35-278; 36-001 THRU 36-044
30	35-002 THRU 35-013; 36-001 THRU 36-007
31	35-014 AND SUBSEQUENT; 36-008 AND SUBSEQUENT
32	35-002 THRU 35-115; 36-001 THRU 36-032
33	35-002 THRU 35-037; 36-001 THRU 36-013, 36-015 AND 36-016
34	35-203 AND SUBSEQUENT; 36-043 AND SUBSEQUENT
35	35-002 AND SUBSEQUENT; 36-002 THRU 36-047
36	35-409 AND SUBSEQUENT; 36-048 AND SUBSEQUENT
37	35-002 THRU 35-676; 36-001 THRU 36-063
38	35-677 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
39	35-669 THRU 35-676

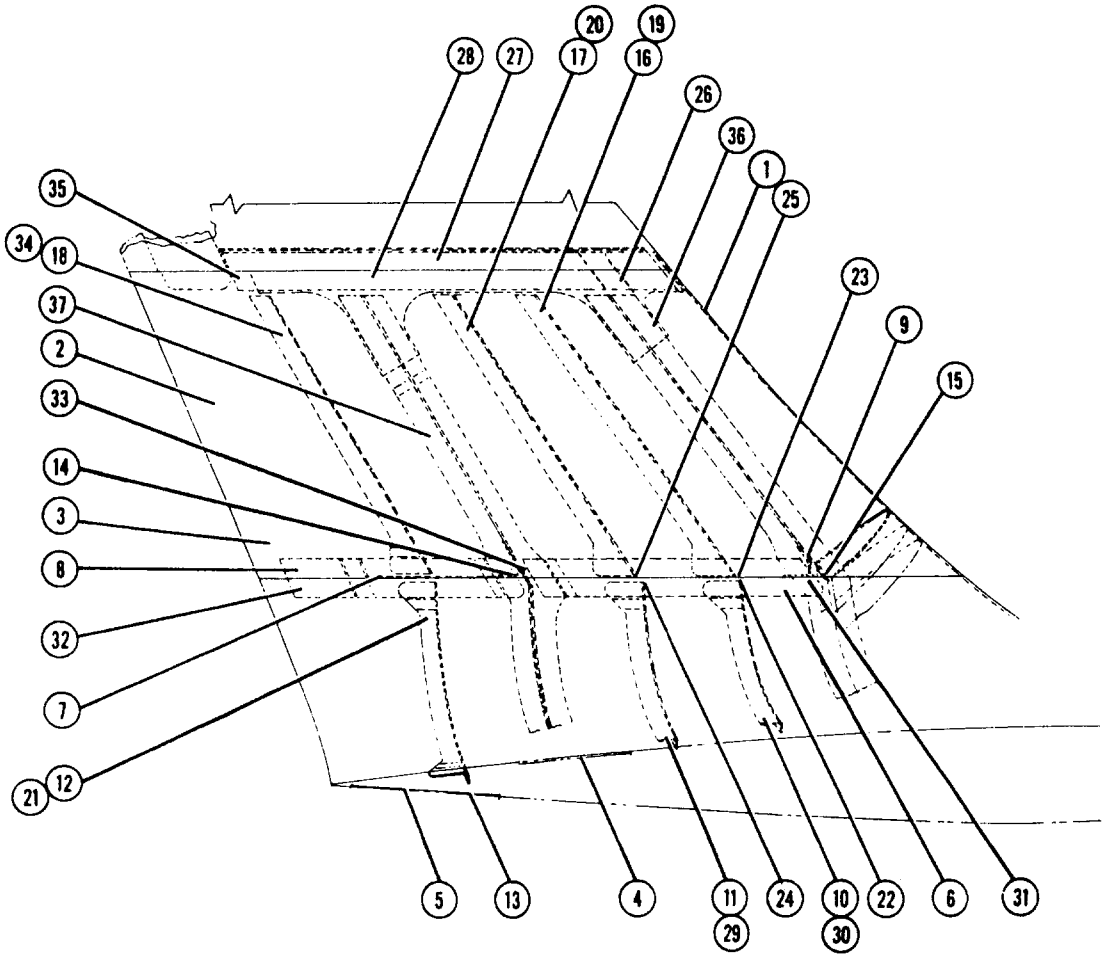
Wing Repair Index
Figure 1 (Sheet 17 of 18)

NOTE

1. Apply conductive coating per Chapter 51.
2. Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1, Class 1 or Class 2, 1145-H19 aluminum sheet.
3. Condition Normalized.
4. Contact Learjet Field Service if more than surface corrosion is encountered on the lower wing skin after removal of the Century III fairing.
5. Per MIL-P-15035.
6. 6061-T6 Alternate material.
7. PH13-8Mo Stainless Steel Bar

Wing Repair Index
Figure 1 (Sheet 18 of 18)

INNER WINGLET - STRUCTURAL IDENTIFICATION



Repro

Inner Winglet Repair Index
Figure 1 (Sheet 1 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0015	Wing Extension Six Foot Instl. LH & RH	–	–	–	–	–
	12225-0059	• Inner Winglet Instl.	1	–	–	–	–
1	12225-0059	• • Skin, Leading Edge	1	2024-T42 Clad	0.063		Replace
2	12225-0059	• • Skin, Upper	1	2024-T42 Clad	0.063	–	Replace
3	12225-0059	• • Skin, Lower	1	2024-T42 Clad	0.063	–	Replace
4	12225-0059	• • Skin, Upper	1	2024-T42 Clad	0.063	–	Replace
5	12225-0059	• • Skin, Lower	1	2024-T42 Clad	0.063	–	Replace
	12225-0059	• • Filler	2	2024-T3	0.125	–	Replace
6	12225-0059	• • Rib	1	2024-T42 Clad	0.040	–	Replace
7	12225-0059	• • Rib	1	2024-T42 Clad	0.040	–	Replace
8	12225-0059	• • Filler	1	2024-T4	0.500	–	Replace
9	12225-0059	• • Angle	1	2024-T42 Clad	0.071	–	Replace
10	12225-0059	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
11	12225-0059	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
12	12225-0059	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
13	12225-0059	• • Doubler	1	2024-T42 Clad	0.032	–	Replace
14	12225-0059	• • Angle, LH	1	2024-T42 Clad	0.063	–	Replace
15	12225-0059	• • Angle	1	2024-T42 Clad	0.063	–	Replace
16	12225-0059	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
17	12225-0059	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
18	12225-0059	• • Stiffener	1	2024-T42 Clad	0.040	–	Replace
19	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
20	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
21	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	12225-0059	• Clip	1	2024-T42 Clad	0.063	–	Replace
22	12225-0059	• Clip	1	2024-T42 Clad	0.063	–	Replace
	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
23	12225-0059	• Clip	1	2024-T42 Clad	0.063	–	Replace
	12225-0059	• Clip	1	2024-T42 Clad	0.063	–	Replace
24	12225-0059	• Clip	1	2024-T42 Clad	0.063	–	Replace
	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	12225-0059	• Stiffener	1	2024-T42 Clad	0.040	–	Replace
	12225-0059	• Shim	1	2024-T42 Clad	0.040	–	Replace
	12225-0059	• Shim	1	2024-T42 Clad	0.040	–	Replace
25	12225-0059	• Clip	1	2024-T42 Clad	0.063	–	Replace
26	12225-0059	• Shim	1	2024-T3 Clad	0.016	–	Replace
27	12225-0059	• Strap	1	2024-T42 Clad	0.100	–	Replace
28	12225-0059	• Strap	1	2024-T42 Clad	0.100	–	Replace
29	12225-0059	• Stiffener	1	2024-T42 Clad	0.050	–	Replace
30	12225-0059	• Stiffener	1	2024-T42 Clad	0.050	–	Replace

Inner Winglet Repair Index
Figure 1 (Sheet 2 of 3)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
31	12225-0059	• Splice Strap, Inbd, Fwd	1	7075-T3	0.040	–	Replace
	12225-0059	• Splice Strap, Outbd, Fwd	1	7075-T73	0.040	–	Replace
32	12225-0059	• Splice Strap, Inbd, Aft	1	7075-T73	0.040	–	Replace
	12225-0059	• Splice Strap, Outbd, Aft	1	7075-T3	0.040	–	Replace
33	12225-0059	• Angle	1	2024-T42 Clad	0.063	–	Replace
34	12225-0059	• Rib	1	2024-T42 Clad	0.050	–	Replace
35	12225-0059	• Splice Strap	1	301 Stainless ▷2	0.040	–	Replace
	12225-0059	• Splice Strap	1	301 Stainless ▷2	0.040	–	Replace
36	2822621	• Front Spar Fitting	1	7075-T4 ▷1	–	–	Replace
37	2822622	• Rear Spar Fitting	1	7075-T4 ▷1	–	–	Replace

CODES **EFFECTIVITIES**

1	28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT
2	31-058 AND SUBSEQUENT

NOTES

▷1 Solution heat treat and age to -T73 after rough machining. Cross section during heat treat not to exceed 0.75 at any point. Part will be hand forged. Optional to solution heat treat and age to -T73 after machining to finish dimension.

▷2 Condition 1/2 hard.

Inner Winglet Repair Index
Figure 1 (Sheet 3 of 3)

INNER WINGLET - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the inner winglet or inner winglet structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

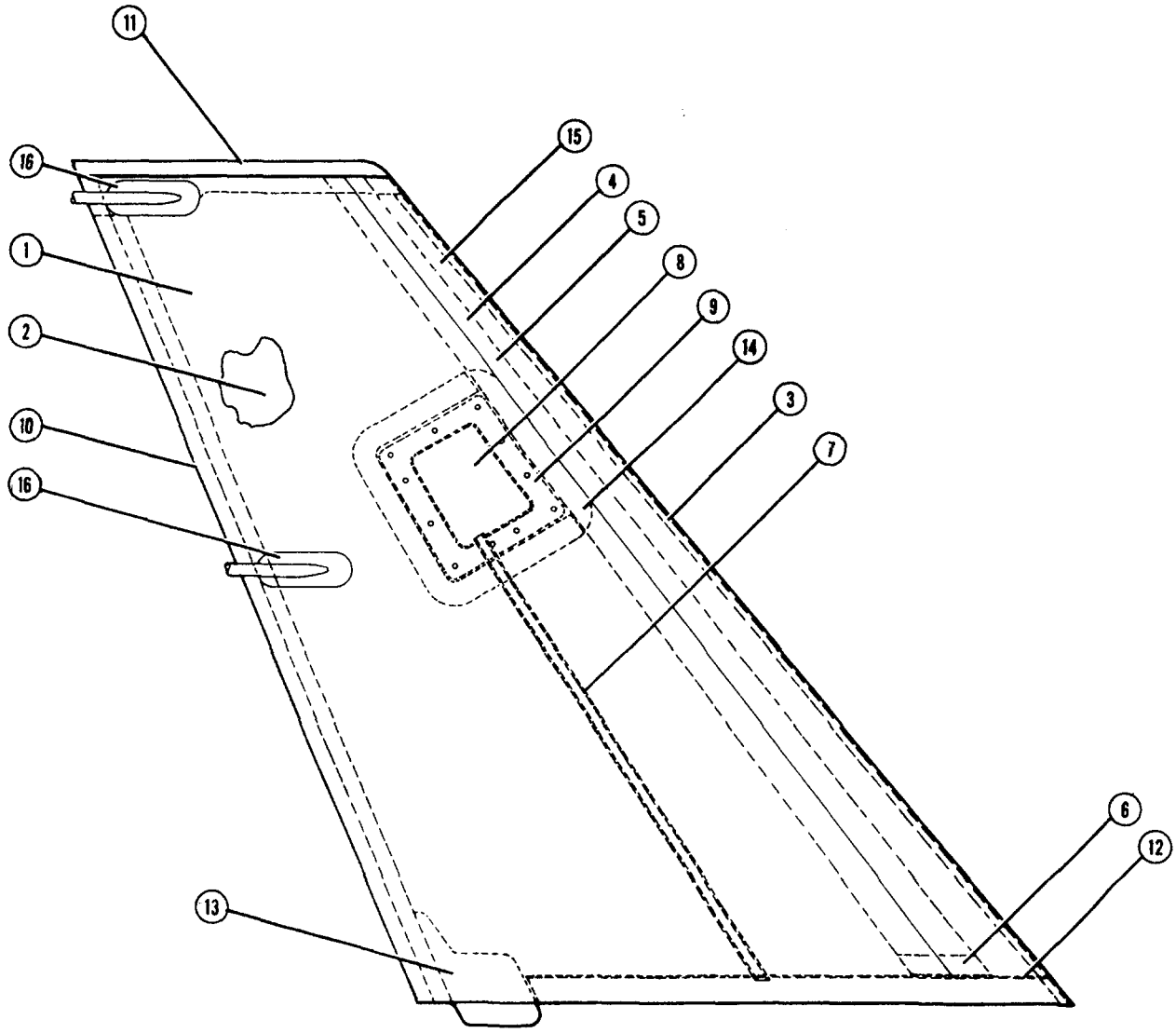
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

INNER WINGLET - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for allowable wear and repair data for the various components attached to the winglet.

OUTER WINGLET - STRUCTURAL IDENTIFICATION



Repro

Outer Winglet Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	12225-0015	Wing Extension Six Foot Instl. LH & RH	–	–	–	–	–
	12225-0059	• Winglet, Inner Instl.	1	–	–	–	–
	2822650	• • Outer Winglet Assy.	1	–	–	–	–
1	2822650	• • • Skin, Inboard	1	2024-T3 Clad	0.032	–	Replace
2	2822650	• • • Skin, Outboard	1	2024-T3 Clad	0.032	–	Replace
3	2822650	• • • Skin, Leading Edge	1	6061-T6	0.032	–	Replace
	2822650	• • • Honeycomb Core, Inboard	1	[1]	0.800	–	Replace
	2822650	• • • Honeycomb Core, Outboard	1	[1]	0.800	–	Replace
4	2822650	• • • Doubler, Upper	1	2024-T42 Clad	0.032	–	Replace
5	2822650	• • • Doubler, Lower	1	2024-T42 Clad	0.040	–	Replace
6	2822650	• • • Clip, Doubler	1	2024-T42 Clad	0.032	–	Replace
7	2822650	• • • Conduit, Strobe	1	Poly Tubing	1/16 Wall	–	Replace
	2822650	• • • Pan Assy.	1	–	–	–	–
8	2822657	• • • • Pan Strobe	1	2024-T42 Clad	0.032	–	Replace
9	2822656	• • • • Mounting Plate, Doubler	1	2024-T351 Clad	0.090	–	Replace
10	2822651	• • • Trailing Edge	1	2024-T351 Clad	0.150	–	Replace
11	2822652	• • • Winglet Tip	1	A356	–	–	Replace
12	2822653	• • • Winglet Rib	1	2024-T42 Clad	0.032	–	Replace
13	2822655	• • • Closure Fitting T.E.	1	2024-T351 Clad	–	–	Replace
14	2822656	• • • Mounting Plate	1	2024-T3 Clad	0.071	–	Replace
15	2822650	• • • Weight	1	Lead 95% Antimony 5%	–	–	Replace
16	No. 15401	• • • Diverter Base	1	–	–	–	Replace

CODES **EFFECTIVITIES**

1 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT

NOTES

[1] AL-1/8-5056-.001N-4.5 LB Hexcel

Outer Winglet Repair Index
Figure 1 (Sheet 2 of 2)

OUTER WINGLET - ALLOWABLE DAMAGE

1. *ALLOWABLE DAMAGE LIMITS*

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the outer winglet or outer winglet structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) *Fittings or forgings with bushing shall be repaired.*

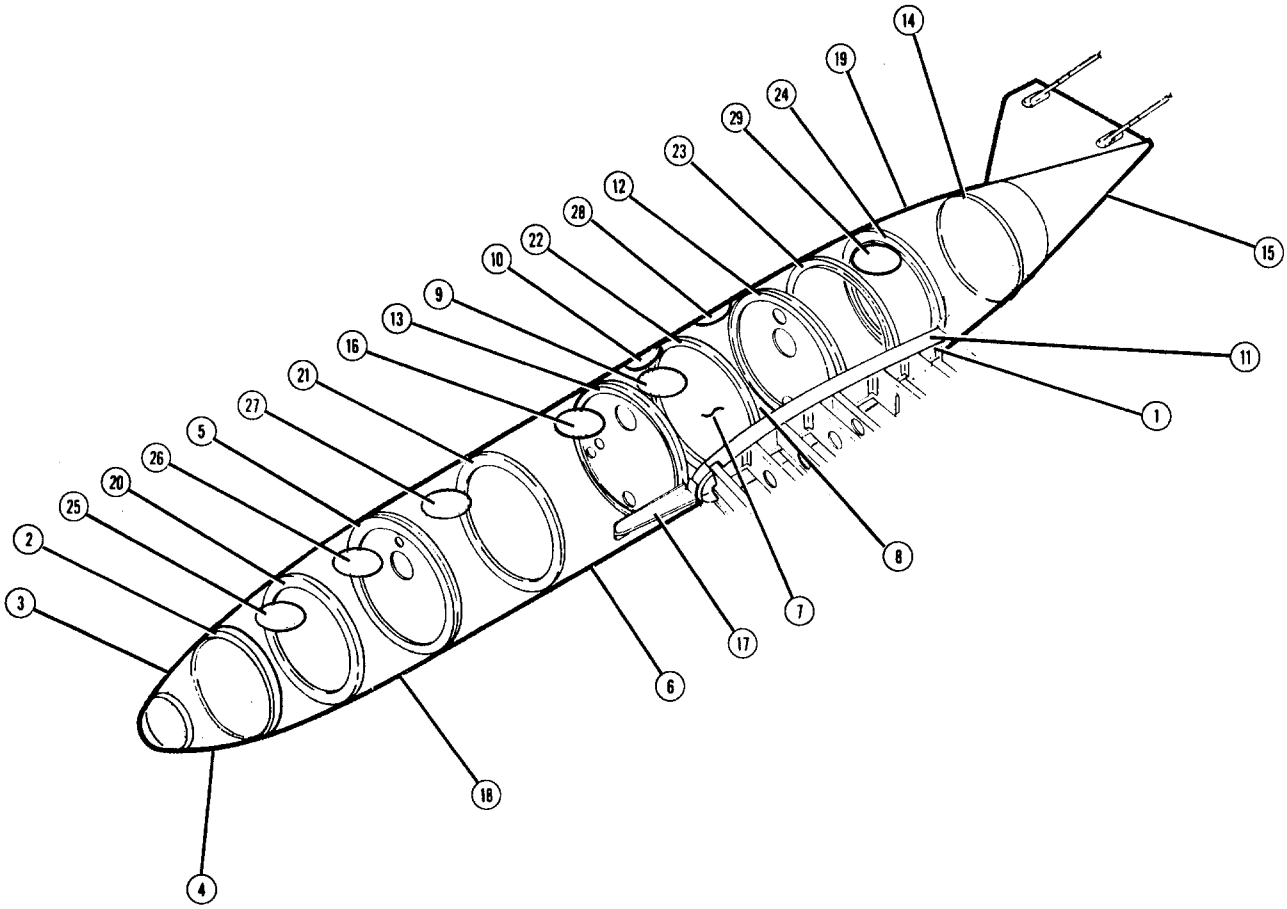
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

OUTER WINGLET - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for allowable wear and repair data for the various components attached to the winglet.

TIP TANK - STRUCTURAL IDENTIFICATION



(TYPICAL)

Repro

Tip Tank Repair Index
Figure 1 (Sheet 1 of 10)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2323000	Tip Tank Instl., LH & RH	1	–	–	–	–
	2423000	Tip Tank Instl., LH & RH	2	–	–	–	–
	2623000	Tip Tank Instl., LH & RH	5	–	–	–	–
	2323001	• Tip Tank Assembly	1	–	–	–	–
	2423100	• Tip Tank Assembly	3	–	–	–	–
	2523001	• Tip Tank Assembly	11	–	–	–	–
1	2323001	• • Strap, Upper, RH & LH	1	2024-T3 Clad	0.090	–	Replace
	2323001	• • Strap, Lower, RH & LH	7	2024-T3 Clad	0.090	–	Replace
	2623000	• • Strap, Upper, RH & LH	3	2024-T3 Clad	0.090	–	Replace
	2623000	• • Strap, Lower, RH & LH	3	2024-T3 Clad	0.090	–	Replace
	2623000	• • Shim	5	2024-T3 Clad	A/R	–	Replace
	2323001	• • Doubler Assy.	8	–	–	–	Replace
	2323001	• • • Doubler (2 ea.)	8	2024-T3 Clad	0.125	F4-6	Replace
	2323001	• • • Spacer (2 ea.)	8	2024-T3 Clad	0.160	F4-6	Replace
	2323000 V152-1	• • Splice Plate	10	2024-T3	0.090	F4ext F4-1int	Replace
	2323000 *V152-2*	• • *Filler*	10	2024-T3	0.090	F4-1	Replace
	2423012	• • Scupper	3	6061-0	0.025	–	Replace
2	2323060	• • Bulkhead Assy.	–	–	–	–	Replace
	2323060	• • • Bulkhead Sta. 15.00	12	6061-T6	0.050	F4-4	Replace
	2323060	• • • Angle (2 ea.)	14	6061-T6	0.050	F4-4	Replace
	2323060	• • Bulkhead Assy. (RH Only)	4	–	–	–	–
	2323060	• • • Bulkhead Sta. 15.00	4	6061-T6	0.050	F4-4	Replace
	2323059	• • Bulkhead Sta. 15.00	13	6061-T6	0.050	F4-4	Replace
	2323059	• • Bulkhead Sta. 15.00 (LH Only)	4	6061-T6	0.050	F4-4	Replace
	2423150	• • Bulkhead	15	6061-T6	0.050	–	Replace
	2423150	• • *Bulkhead (LH Only)*	*16*	*6061-T6*	*0.050*	–	*Replace*
	2423150	• • Bulkhead Assy. (RH Only)	16	–	–	–	–
	2423150	• • • Bulkhead	16	6061-T6	0.050	–	Replace
	2423150	• • • Web	16	2024-T3	0.050	–	51-70-02
	2323001	• • Filler	61	6061-T6	0.020	F4ext F4-4int	Replace
3	2323062	• • Nose Cap Assy.	17	–	–	–	–
	2323062	• • • Retainer - Lens	17	6061-T4	0.040	F1ext F14-1int	Replace
	2323062	• • • Spacer	17	Phenolic [1]	0.250	–	Replace
	2323062	• • Bracket, Taxi Light	9	2024-T4	0.040	F4-1	Repalce
	2323071	• • Nose Cap	18	6061-T6	0.080	–	Replace
	2323071	• • Nose Cap, LH Only	4	6061-T6	0.080	–	Replace
	2423100	• • Nose Cap, LH	19	6061-T6	0.090	–	51-70-02
	2423100	• • Nose Cap, LH	20	6061-T6	0.090	–	51-70-02

Tip Tank Repair Index
Figure 1 (Sheet 2 of 10)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
4	2323073	• • Bracket, Taxi Light (RH Only)	19	2024-T4	0.050	F4-1	Replace
	2323073	• • Nose Cap Assy. (RH Only)	19	–	–	–	–
	2323062	• • • Retainer, Lens	19	6061-T4	0.040	F4	Replace
	2323062	• • • Spacer	19	Phenolic [1]	0.250	–	Replace
5	2323025	• • Bulkhead Assy., Sta. 46.00	1	–	–	–	–
	2323025	• • • Bulkhead	1	6061-T6	0.050	–	Replace
	2323025	• • • Bulkhead, Ring	1	6061-T6	0.050	–	Replace
	2423140	• • Bulkhead Assy., Sta. 46.00	3	–	–	–	–
	2423140	• • • Ring Weldment	3	S-715	–	T6	Replace
	2423140	• • • Cover	3	2024-T3 Clad	0.050	–	51-70-02
	2423140	• • • Web	3	2024-T3 Clad	0.050	–	51-70-02
6	2323001	• • Skin, Sta. 46.00 to 84.31	9	6061-T6	0.050	–	51-70-02
	2323001	• • Skin, Sta. 46.00 to 84.31	10	6061-T6	0.080	–	51-70-02
	2523001	• • Skin, Sta. 46.00 to 84.31	11	6061-T6	0.080	–	51-70-02
	2423100	• • Skin, Sta. 46.00 to 84.31	3	6061-T6	0.080	–	51-70-02
7	2323001	• • Skin, Sta. 84.31 to 113.20	9	6061-T6	0.050	–	51-70-02
	2323001	• • Skin, Sta. 84.31 to 113.20	10	6061-T6	0.080	–	51-70-02
	2523001	• • Skin, Sta. 84.31 to 113.20	11	6061-T6	0.080	–	51-70-02
	2423100	• • Skin, Sta. 84.31 to 113.20	3	6061-T6	0.090	–	51-70-02
8	2423103	• • Fairing	39	2024-T42	0.020	F14-1int F1ext	Replace
	2323049	• • Junction Box Instl.	21	–	–	–	–
9	2323049	• • • Door	21	2024-T42	0.063	–	Replace
	2323049	• • • Tube (0.250 OD x 0.035 Wall)	21	5052-0 Clad	–	F4-4	Replace
	2323049	• • • Weld Assy.	21	–	–	–	–
	2323049	• • • • Can	21	6061-T42	0.091	–	Replace
	2323049	• • • • Doubler	21	6061-T42	0.063	F4-4	Replace
	2323049	• • • • Fitting	21	6061-T6 Bar	1.500	–	Replace
	2323049	• • • • Fitting	21	6061-T6 Bar	1.250	–	Replace
	2323049	• • • • Fitting (2 ea.)	21	6061-T6 Bar	1.000	–	Replace
	2323069	• • Junction Box Instl.	22	–	–	–	–
	2323069	• • • Tube (0.250 OD x 0.035 Wall)	22	5052-0 Clad	–	–	Replace
	2323069	• • • Fitting	22	6061-T6 Rod	7/16	–	Replace
	2323049	• • • Door	22	6061-T6	0.080	–	Replace
	2323069	• • • Door	22	6061-T6	0.080	–	Replace
	2323069	• • • Can Assy.	22	–	–	F4-4	–
	2323049	• • • • Doubler	22	6061-T42	0.063	F4-4	Replace
	2323069	• • • • Can	22	6061-T42	0.091	–	Replace
	2323049	• • • • Fitting	22	6061-T6 Bar	1.500	–	Replace
	2323049	• • • • Fitting	22	6061-T6 Rod	1.250	–	Replace
	2323069	• • • • Fitting	22	6061-T6 Rod	0.750	–	Replace
	2323049	• • • • Fitting	18	6061-T6	1.000	–	Replace
	2323049	• • • • Fitting	10	6061-T6	1.250	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2423080	• • Junction Box Instl.	29	–	–	–	–
	2323069	• • • Fitting	30	6061-T6 Rod	7/16	–	Replace
	2423080	• • • Fitting Assy.	31	–	–	–	Replace
	2323069	• • • • Fitting	31	6061-T6 Rod	7/16	–	Replace
	2423080	• • • • Flange	31	6061-T6	0.070	–	Replace
	2323069	• • • Door	29	6061-T6	0.080	–	Replace
	2323069	• • • Tube (0.250 OD x 0.035 Wall)	30	5052-0 Clad	–	–	Replace
	2423080	• • • Tube Assy.	31	–	–	–	Replace
	2423080	• • • Tube (0.250 OD x 0.035 Wall)	31	5052-0 Clad	–	–	Replace
	2423080	• • • Junction Box Assy.	29	–	–	–	–
	2423081	• • • • Junction Box	29	–	–	–	–
	2423081	• • • • • Can	29	6061-T42	0.063	–	Replace
	2423081	• • • • • Pan	29	6061-T42	0.063	–	Replace
	2323049	• • • • • Fitting	29	6061-T6 Bar	1.500	–	Replace
	2323049	• • • • • Fitting	29	6061-T6 Rod	0.750	–	Replace
	2323069	• • • • • Fitting	29	6061-T6 Rod	0.750	–	Replace
	2423072	• • • • • Fitting	31	6061-T6	0.875	–	Replace
	2423074	• • • • • Tube (0.500 OD x 0.049 Wall)	31	6061-T6	–	–	Replace
	2323010	• • Filler Cap Instl.	17	–	–	–	–
10	416-378	• • • Cap & Adapter Assy.	23	–	–	–	Replace
	2323010	• • • Doubler	17	6061-T6	0.063	–	Replace
	2323010	• • • Adapter	24	–	–	–	Replace
	416-50	• • • Filler Cap	24	–	–	–	Replace
	2323070	• • Filler Cap Instl.	25	–	–	–	–
	2323070	• • • Doubler	25	6061-T6	0.063	–	Replace
	416-378-1	• • • Cap & Adapter Assy.	26	–	–	–	Replace
	457-24	• • • Cap & Adapter Assy.	27	–	–	–	Replace
	2423160	• • Mounting Instl., LH & RH	3	–	–	–	–
11	2423162	• • • Fitting	3	6061-T6	0.050	–	Replace
	2423160	• • • Mounting	3	–	–	–	51-71-00
	2623162	• • • Mounting, Fwd	3	2024-T42 Clad	0.080	–	Replace
	2423102	• • Tube Assy.	3	–	–	–	–
	2423102	• • • Tube (2.00 OD x 0.083 Wall)	3	6061-T6	–	–	Replace
	2423102	• • • Ring	3	6061-T6	0.080	–	Replace
	2423102	• • Tube Assy.	3	–	–	–	–
	2423102	• • • Ring	3	6061-T6	0.080	–	Replace
	2423102	• • • Tube (2.00 OD x 0.083 Wall)	3	6061-T6	–	–	Replace
	2323006	• • Flapper Assy.	3	–	–	–	–
	2323006	• • • Ring	3	6061-T6	0.063	–	Replace
	2323006	• • • Plate	3	6061-T6	0.063	–	Replace

Tip Tank Repair Index
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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
12	2323027	• • Bulkhead Assy., Sta. 113.60	1	–	–	–	–
	2323027	• • • Ring, Lower	44	6061-T6	0.050	–	Replace
	2323027	• • • Ring, Upper	1	6061-T6	0.050	–	Replace
	2323027	• • • Angle	1	6061-T6	0.063	–	Replace
	2323027	• • • Doubler	46	6061-T6	0.050	–	Replace
	2323027	• • • Spacer	1	6061-T6	0.125	–	Replace
	2323027	• • • Bulkhead	1	6061-T6	0.063	–	Replace
	2323027	• • • Ring, Bulkhead	1	6061-T6	0.050	–	Replace
	2423110	• • Bulkhead Assy., Sta. 113.60	3	–	–	–	–
	2423110	• • • Support	3	2024-T42 Clad	0.063	–	Replace
	2423110	• • • Support	3	2024-T42 Clad	0.063	–	Replace
	2423110	• • • Web	3	2024-T3 Clad	0.050	–	Replace
	2423110	• • • Doubler	3	2024-T3 Clad	0.050	–	Replace
	2423110	• • • Spacer	47	2024-T3	0.125	–	Replace
	2423110	• • • Ring, Weldment	48	S715	–	–	Replace
	2423013	• • • Ring, Bulkhead	49	7075-T35	2.000	–	Replace
13	2323026	• • Bulkhead Assy., Sta. 83.85	40	–	–	–	–
	2323026	• • • Ring, Lower	40	6061-T6	0.050	–	Replace
	2323026	• • • Ring, Upper	40	6061-T6	0.050	–	51-70-02
	2323026	• • • Angle	40	6061-T6	0.063	–	Replace
	2323026	• • • Fitting	40	6061-T6	1.000	–	Replace
	2323026	• • • Bulkhead	40	6061-T6	0.090	–	Replace
	2323026	• • • Ring, Bulkhead Segment	40	6061-T6	0.050	–	Replace
	2323027	• • • Spacer	40	6061-T6	0.125	–	Replace
	2323001V651	• • • Doubler	62	6061-T6	0.080	–	Replace
	2423130	• • Bulkhead Assy., Sta. 83.85	41	–	–	–	–
	2423130	• • • Support	41	2024-T42 Clad	0.063	–	Replace
	2423130	• • • Web	41	2024-T3 Clad	0.050	–	51-70-02
	2423130	• • • Support	41	2024-T42 Clad	0.063	–	Replace
	2423013	• • • Ring, Bulkhead	41	7075-T35	2.000	–	Replace
14	2323024	• • Bulkhead, Sta. 146.42	51	6061-T6	0.080	–	Replace
	2523002	• • Bulkhead, Sta. 146.42	16	6061-T6	0.080	–	Replace
15	2323064	• • Tailcone Assy.	6	–	–	–	–
	2323064	• • • Skin	6	6061-T6	0.040	–	Replace
	2323064	• • • Bulkhead, Fwd	6	6061-T6	0.050	–	Replace
	2323064	• • • Bulkhead, Aft	6	6061-T6	0.050	–	Replace
	2323064	• • • Angle, Skin Attach (2 ea.)	53	2024-T3	0.040	–	Replace
	2323064	• • • Angle, Skin Attach	54	2024-T3	0.040	–	Replace
	2323064	• • • Angle, Fin, Cone	6	2024-T42	0.040	–	Replace
	2323064	• • • Skin, Fin	6	2024-T3	0.040	–	Replace
	2323064	• • • Tip, Fin	55	Fiberglass	–	–	Replace
	2323064	• • • Tip, Fin	56	Epoxy Molding	–	–	Replace

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2323064	• • • Tip, Fin	57	Polyurethane	–	–	Replace
	2323064	• • • Rib, Tank BL12.00	6	2024-T42	0.040	–	Replace
	2323064	• • • Rib Segment, Root, Fwd	6	2024-T42	0.050	–	Replace
	2323064	• • • Rib Segment, Root, Aft	6	2024-T42	0.050	–	Replace
	2323064	• • • Rib, Fwd Closing	6	2024-T42	0.040	–	Replace
	2323064	• • • Clip, Rib Connecting	6	2024-T3	0.063	–	Replace
	2323064	• • • Spar, Fin	6	2024-T42	0.071	–	Replace
	2323064	• • • Angle, Bulkhd Attach	6	2024-T42	0.040	–	Replace
	2523003	• • Tailcone Assy.	52	–	–	–	–
	2523003	• • • Fin Assy.	52	–	–	–	–
	2323064	• • • • Skin, Fin	52	2024-T3 Clad	0.040	–	51-70-02
	2323064	• • • • Tip, Fin	58	Fiberglass	–	–	Replace
	2323064	• • • • Tip, Fin	59	Epoxy Molding	–	–	Replace
	2323064	• • • • Tip, Fin	60	Polyurethane	–	–	Replace
	2323064	• • • • Rib, Tank, BL12	52	2024-T42 Clad	0.040	–	51-70-03
	2323064	• • • • Root Rib Segment, Fwd	52	2024-T42 Clad	0.050	–	51-70-03
	2323064	• • • • Root Rib Segment, Aft	52	2024-T42 Clad	0.050	–	51-70-03
	2323064	• • • • Rib, Fwd Closing	52	2024-T42 Clad	0.040	–	51-70-03
	2323064	• • • • Clip, Rib Connecting	52	2024-T3 Clad	0.063	–	Replace
	2323064	• • • • Spar, Fin	52	2024-T42 Clad	0.071	–	51-70-03
	2323064	• • • • Angle, Bulkhead Attach	52	2024-T3 Clad	0.040	–	Replace
	2523003	• • • Angle, Mounting	25	S-512	–	–	51-70-04
	2523003	• • • Doubler	52	2024-T42	0.040	–	Replace
	2523003	• • • Angle, Skin Attach	52	2024-T3 Clad	0.040	–	Replace
	2323064	• • • Angle, Fin to Cone	52	2024-T42 Clad	0.040	–	Replace
	2323064	• • • Angle, Fin to Cone	52	2024-T42 Clad	0.040	–	Replace
	2323064	• • • Angle, Skin Attach	52	2024-T3 Clad	0.040	–	Replace
	2523003	• • • Bulkhead, Aft	52	2024-T42 Clad	0.040	–	51-70-03
	2523003	• • • Skin, Tailcone	52	6061-T6	0.040	–	51-70-02
	2523003	• • • Bulkhead	52	6061-T6	0.050	–	51-70-03
	2523003	• • • Angle, Bulkhead Attach, Lower	52	2024-T3 Clad	0.040	–	Replace
	2523003	• • • Cover, Access	52	2024-T42 Clad	0.040	–	Replace
	2523003	• • • Bracket, Mounting	52	2024-T42	0.063	–	Replace
	2523003	• • • Tube (3.25 OD x 0.035 Wall)	52	6061-T6	–	–	Replace
	2523003	• • • Ring	52	6061-T6	0.040	–	Replace
	2323045	• • Access Door Instl.	35	–	–	–	–
16	2323045	• • • Door	9	6061-T6	0.063	F4-4	Replace
	2323045	• • • Doubler	9	6061-T6	0.063	F4-4	Replace
	2323045	• • • Door	3	6061-0	0.080	–	Replace
	2323045	• • • Doubler	3	6061-0	0.080	–	Replace
	2422037	• • Strake Instl.	63	–	–	–	–

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
17	2422081	• • • Panel (2 ea.)	63	6061-T6	0.063	–	Replace
	2422039	• • • Fairing Assy.	63	–	–	–	–
	2422039	• • • • Fairing	63	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • Doubler	63	2014-T6	0.071	–	Replace
	2422039	• • • • Doubler	63	2024-T3	0.040	–	Replace
	2422036	• • • • Stiffener	63	S-699	–	–	51-70-04
	2422041	• • • Support Assy.	63	–	–	–	–
	2422041	• • • • Support	63	2024-T3 Clad	0.063	–	Replace
	2422041	• • • • Support	64	S-744	–	–	51-70-04
	2422041	• • • • Support	65	S-745	–	–	51-70-04
	2422040	• • • Strake Assy.	63	–	–	–	–
	2422040	• • • • Strake (2 ea.)	63	6061-T4	0.063	–	Replace
	2622037	• • Strake Instl.	66	–	–	–	–
	2622036	• • • Panel (2 ea.)	66	6061-T6	0.063	–	Replace
	2422039	• • • Fairing Assy.	66	–	–	–	–
	2422039	• • • • Fairing	66	2024-T3 Clad	0.063	–	Replace
	2422039	• • • • Doubler	66	2014-T6	0.071	–	Replace
	2422039	• • • • Doubler	66	2024-T3	0.040	–	Replace
	2422036	• • • • Stiffener	66	S-699	–	–	51-70-04
	2422041	• • • Support Assy.	66	–	–	–	–
	2422041	• • • • Support	66	2024-T3 Clad	0.063	–	Replace
	2422041	• • • • Support	67	S-744	–	–	51-70-04
	2422041	• • • • Support	68	S-745	–	–	51-70-04
	2622038	• • • Strake Assy.	66	–	–	–	–
	2622038	• • • • Strake (2 ea.)	66	6061-T4	0.063	–	Replace
18	2323001	• • • Skin, Sta. 15.00 to 46.00	9	6061-T3	0.050	–	51-70-02
	2323001	• • • Skin, Sta. 15.00 to 46.00	4	6061-T3	0.080	–	51-70-02
	2423100	• • • Skin, Sta. 15.00 to 46.00	19	6061-T3	0.080	–	51-70-02
	2423100	• • • Skin, Sta. 15.00 to 46.00	20	6061-T3	0.090	–	51-70-02
19	2323001	• • • Skin, Sta. 113.20 to 149.94	9	6061-T3	0.080	–	51-70-02
	2323001	• • • Skin, Sta. 113.20 to 149.94	4	6061-T3	0.080	–	51-70-02
	2423100	• • • Skin, Sta. 113.20 to 149.94	19	6061-T3	0.080	–	51-70-02
	2423100	• • • Skin, Sta. 113.20 to 149.94	20	6061-T3	0.090	–	51-70-02
20	2323059	• • Bulkhead Sta. 29.50	40	6061-T6	0.050	F4-4	Replace
21	2323059	• • Bulkhead Sta. 65.00	40	6061-T6	0.050	F4-4	Replace
22	2323059	• • Bulkhead Sta. 98.63	42	6061-T6	0.050	F4-4	Replace
	2423120	• • Bulkhead Sta. 98.86	43	6061-T6	0.050	F4-4	Replace
23	2323059	• • Bulkhead Sta. 121.00	50	6061-T6	0.050	F4-4	Replace
24	2323059	• • Bulkhead Sta. 130.80	50	6061-T6	0.050	F4-4	Replace
	2423101	• • Access Door Instl.	3	–	–	–	–
25	2423101	• • • Doubler	3	6061-T6	0.080	F4-4	Replace
	2423101	• • • Door	3	6061-T6	0.080	F4ext F4-4int	Replace
	2323045	• • Access Door Instl.	36	–	–	–	–

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
26	2323045	• • • Door	9	6061-T6	0.063	F4-4	Replace
	2323045	• • • Doubler	9	6061-T6	0.063	F4-4	Replace
	2323045	• • • Door	34	6061-T6	0.080	F4-4	Replace
	2323045	• • • Doubler	34	6061-T6	0.080	F4-4	Replace
	2323043	• • Access Door Instl.	18	–	–	–	–
27	2323043	• • • Door	18	6061-T6	0.063	F4-4	Replace
	2323070	• • • Doubler	18	6061-T6	0.063	F4-4	Replace
28	2323045	• • Access Door Instl.	37	–	–	–	–
	2323045	• • • Door	38	6061-T6	0.063	F4-4	Replace
	2323045	• • • Doubler	38	6061-T6	0.063	F4-4	Replace
	2323045	• • • Door	39	6061-T6	0.080	F4-4	Replace
	2323045	• • • Doubler	39	6061-T6	0.080	F4-4	Replace
	2323045	• • Access Door Instl.	35	–	–	–	–
29	2323045	• • • Door	9	6061-T6	0.063	F4-4	Replace
	2323045	• • • Doubler	9	6061-T6	0.063	F4-4	Replace
	2323045	• • • Door	39	6061-0	0.080	–	Replace
	2323045	• • • Doubler	39	6061-0	0.080	–	Replace
	2323041	• • Door & Support Inst.	32	–	–	–	–
	2323041	• • • Door	32	6061-T6	0.050	F4ext F4-4int	Replace
	2323041	• • • Doubler Assy.	32	–	–	–	Replace
	2323041	• • • • Doubler	32	6061-T6	0.063	F4-4	Replace
	2323041	• • • Bracket	32	6061-T6	0.071	F4-4	Replace
	2323041	• • • Channel (2 ea.)	32	6061-T6	0.040	F4-4	Replace
	2323067	• • Pump Instl.	33	–	–	–	–
	2323067	• • • Bracket Assy.	33	–	–	–	Replace
	2323067	• • • • Bracket	33	6061-T6	0.063	–	Replace
	2323068	• • • Cover	33	2024-T42	0.032	F4-6ext F4-4int	Replace
	2423103	• • Fairing	39	2024-T42	0.020	F14-1int F1ext	Replace

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CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
2	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373
3	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
4	24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
5	35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
6	23-002 THRU 23-099; 24-100 THRU 24-357; 25-007 THRU 25-373
7	23-040 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
8	24-140 THRU 24-229 EXCEPT 24-218; 25-002 THRU 25-066 EXCEPT 25-061
9	23-002 THRU 23-099
10	24-100 THRU 24-229 EXCEPT 24-218; 25-007 THRU 25-066 EXCEPT 25-061
11	25-002 THRU 25-006
12	23-002 THRU 23-065
13	23-066 THRU 23-099
14	23-002 THRU 23-008
15	24-218, 24-230 THRU 24-244; 25-061, 25-067 THRU 25-079
16	24-245 THRU 24-357; 25-080 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
17	23-002 THRU 23-051
18	23-052 THRU 23-099
19	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 35-002 THRU 35-663; 36-002 THRU 36-063
20	35-664 AND SUBSEQUENT; 36-064 AND SUBSEQUENT
21	23-011 THRU 23-051
22	23-052 THRU 23-099; 24-100 THRU 24-264; 25-002 THRU 25-103
23	23-002 THRU 23-030
24	23-031 THRU 23-051
25	23-052 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
26	24-100 THRU 24-229 EXCEPT 24-218
27	25-002 THRU 25-357; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
28	DELETED
29	24-265 THRU 24-357; 25-104 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
30	24-265 THRU 24-294; 25-104 THRU 25-170; 35-002 THRU 35-003; 36-002
31	24-295 THRU 24-357; 25-171 THRU 25-373; 35-004 AND SUBSEQUENT; 36-003 AND SUBSEQUENT
32	23-011 THRU 23-016
33	23-017 THRU 23-069
34	24-100 THRU 24-357; 25-080 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
35	23-002 THRU 23-099; 24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
36	23-002 THRU 23-099; 24-100 THRU 24-357; 25-080 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
37	23-070 THRU 23-099; 24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 35-002 AND SUBSEQUENT ; 36-002 AND SUBSEQUENT
38	23-070 THRU 23-099

Tip Tank Repair Index
Figure 1 (Sheet 9 of 10)

CODES	EFFECTIVITIES
39	24-100 THRU 24-357; 25-007 THRU 25-373; 35-002 THRU 35-663; 36-002 THRU 36-063
40	23-002 THRU 23-099; 24-100 THRU 24-230; 25-002 THRU 25-006
41	24-231 THRU 24-357; 25-007 THRU 25-373; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
42	23-002 THRU 23-099; 24-100 THRU 24-229; 25-002 THRU 25-006
43	24-218, 24-230 THRU 24-244; 25-007 THRU 25-079
44	23-002 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218
45	DELETED
46	25-002 THRU 25-066 EXCEPT 25-061
47	24-100 THRU 24-217; 25-002 THRU 25-066 EXCEPT 25-061
48	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-241; 35-002 THRU 35-171; 36-002 THRU 36-038
49	25-242 THRU 25-373; 35-172 AND SUBSEQUENT; 36-039 AND SUBSEQUENT
50	23-002 THRU 23-099; 24-100 THRU 24-230; 25-002 THRU 25-066 EXCEPT 25-061
51	23-002 THRU 23-099; 24-100 THRU 24-244; 25-002 THRU 25-079
52	25-002 THRU 25-006; 35-240 AND SUBSEQUENT; 36-044 AND SUBSEQUENT
53	24-100 THRU 24-189; 25-001 THRU 25-029
54	24-190 THRU 24-357; 25-030 THRU 25-373
55	24-328 THRU 24-356; 25-007 THRU 25-267
56	24-357; 25-268 THRU 25-318
57	25-319 THRU 25-373
58	25-002 THRU 25-007; 35-002 THRU 35-224; 36-002 THRU 36-044
59	35-225 THRU 35-350; 36-045
60	35-351 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
61	23-002 THRU 23-008
62	24-101 THRU 24-109
63	24-329 THRU 24-357; 25-206 THRU 25-373
64	24-229 THRU 24-233; 25-206 THRU 25-207
65	24-334 THRU 24-357; 25-208 THRU 25-373
66	35-067 AND SUBSEQUENT; 36-018 AND SUBSAEQUENT
67	35-067 THRU 35-082; 36-018 THRU 36-020
68	35-083 AND SUBSEQUENT; 36-021 AND SUBSEQUENT

NOTES

1 Per MIL-P-15035

Tip Tank Repair Index
Figure 1 (Sheet 10 of 10)

TIP TANK - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of a tip tank or the tip tank structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

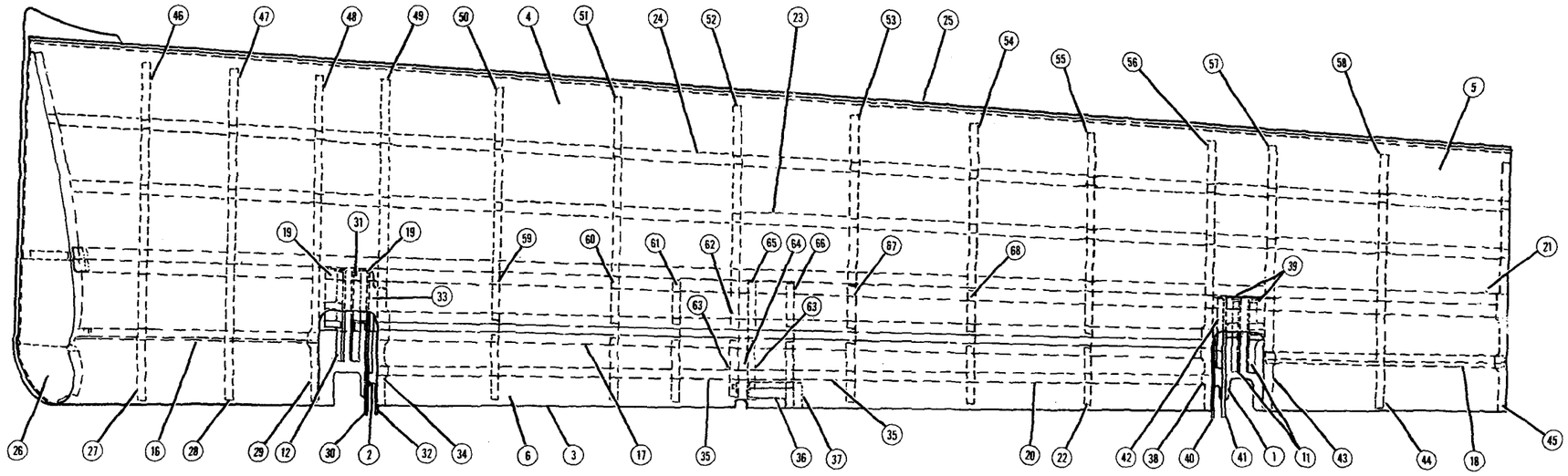
TIP TANK - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the tip tank fittings and attaching parts.

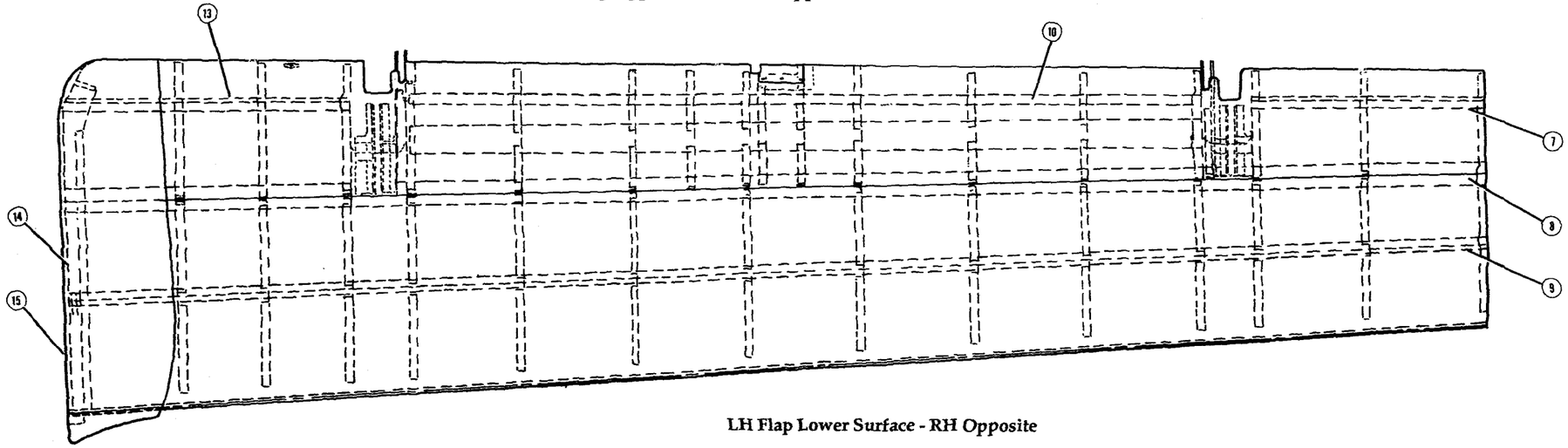
Learjet

STRUCTURAL REPAIR MANUAL

FLAP - STRUCTURAL IDENTIFICATION



LH Flap Upper Surface - RH Opposite



LH Flap Lower Surface - RH Opposite

(23-002 thru 23-099; 24-100 thru 24-328; 25-002 thru 25-205; 35-002 thru 35-059; 36-002 thru 36-017)

Flap Repair Index
Figure 1 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2325000	Flap Instl.	1	–	–	–	–
1	2325000	• Flap Nose Roller	1	–	–	–	51-71-00
	2325022	• Track Assy., Outboard	1	–	–	–	–
2	2325022	• • Track	1	–	–	–	51-71-00
	2325022	• Track Assy., Inboard	1	–	–	–	–
3	2325022	• • Track	1	–	–	–	51-71-00
	2325010	• Flap Assy., LH & RH	1	–	–	–	–
4	2325010	• • Skin, Upper Trailing Edge	1	2024-T3 Clad	0.025	F14-1int F1ext	51-70-02
5	2325010	• • Skin, Lower Trailing Edge	1	2024-T3 Clad	0.025	F14-1int F1ext	51-70-02
6	2325010	• • Skin, Leading Edge	1	2024-T42 Clad	0.032	F14-1int F1ext	51-70-02
7	2325010	• • Stringer, Lower	1	S-559	–	F4-1	51-70-04
8	2325010	• • Spar Cap, Lower	1	2014-T6 Clad	0.062	F4-1	Replace
9	2325010	• • Stringer, Lower	1	S-559	–	F4-1	51-70-04
10	2325010	• • Stringer, Lower	1	S-554	–	F4-1	51-70-04
11	2325010	• • Rib, Attach, Outboard (2 ea.)	1	2024-T42	0.050	F4-1	51-71-00
12	2325010	• • Rib, Attach, Inboard (2 ea.)	1	2024-T42	0.050	F4-1	51-71-00
13	2325010	• • Stringer, Lower	1	S-559	–	F4-1	51-70-04
14	2325010	• • Fairing Support	4	6061-0 Clad	0.032	F4-1	Replace
	2425111	• • Fairing Support	5	2024-T42 Clad	0.032	F4-1	Replace
15	2325010	• • Fairing, Flap	4	6061-T4 Clad	0.032	F4-1	Replace
	2425111	• • Fairing, Flap	5	6061-T4 Clad	0.032	F4-1	Replace
16	2325010	• • Stringer, Upper Inboard	1	S-559	–	F4-1	51-70-04
17	2325010	• • Stringer, Upper Inboard	1	2024-T42 Clad	0.062	F4-1	51-70-04
	2325010	• • Stringer, Lower Inboard	1	2024-T42 Clad	0.062	F4-1	51-70-04
18	2325010	• • Stringer, Upper Outboard	1	S-559	–	F4-1	51-70-04
19	2325010	• • Bracket, Inboard (2 ea.)	1	2024-T42 Clad	0.050	F4-1	51-70-04
	2325010	• • Clip (2 ea.)	3	2024-T42	0.050	F4-1	51-70-04
20	2325010	• • Stringer, Upper	1	2024-T42 Clad	0.050	F4-1	51-70-03
21	2325010	• • Spar Cap, Upper	1	2024-T3 Clad	0.062	F4-1	Replace
22	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	Replace
23	2325010	• • Spar	1	2024-T42 Clad	0.040	F4-1	51-70-04
24	2325010	• • Stringer, Upper	1	2024-T3 Clad	0.032	F4-1	51-70-04
25	2325010	• • Trailing Edge Extrusion	2	S-639	–	F4-1	Replace
26	2325010	• • Rib, Inboard	1	2024-T42 Clad	0.040	F4-1	51-70-03
27	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
28	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
29	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-03
30	2325010	• • Nose Roller Support, Inboard	1	2024-T3 Clad	0.125	–	Replace
31	2325010	• • Rib, Track Attach	1	2024-T42	0.050	F4-1	Replace
32	2325010	• • Nose Roller Support, Inboard	1	301 Stainless [1]	0.080	F4-1	Replace

Flap Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
33	2325010	• • *Nose Roller Support, Inboard*	*1*	*2024-T42 Clad*	*0.050*	*F4-1*	*Replace*
34	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	–	51-70-03
35	2325010	• • Doubler	1	2024-T42 Clad	0.040	F4-1	Replace
	2325010	• • Spacer (3 ea.)	1	2024-T3	0.062	F4-1	Replace
36	2325010	• • Access Cover	1	2024-T42 Clad	0.050	F14-1int F1ext	Replace
37	2325010	• • Doubler	1	2024-T42 Clad	0.032	F4-1	Replace
38	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-03
39	2325010	• • Bracket, Outboard (2 ea.)	1	2024-0 Clad	0.050	F4-1	Replace
	2325010	• • Clip (2 ea.)	3	2024-T42	0.050	F4-1	51-70-04
40	2325010	• • Nose Roller Support, Outboard	1	301 Stainless 1	0.080	F4-1	Replace
41	2325010	• • Nose Roller Support, Outboard	1	2024-T3 Clad	0.125	F4-1	Replace
42	2325010	• • Rib, Track Attach	1	2024-T42	0.050	F4-1	Replace
43	2625015	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-03
44	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
45	2325010	• • Rib, Outboard	1	2024-T42 Clad	0.040	F4-1	51-70-03
46	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
47	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
48	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
49	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
50	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
51	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
52	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
53	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
54	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
55	*2325010*	• • *Rib, Trailing Edge*	*1*	*2024-T42 Clad*	*0.025*	*F4-1*	*51-70-03*
56	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
57	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
58	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
59	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
60	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
61	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
62	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-03
63	2325010	• • Reinforcing Angle (4 ea.)	1	S-575	–	F4-1	Replace
64	2325010	• • Reinforcing Channel (2 ea.)	1	2024-T4	0.750	F4-1	Replace
65	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	F4-1	51-70-03
66	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
67	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
68	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03

Flap Repair Index
Figure 1 (Sheet 3 of 4)

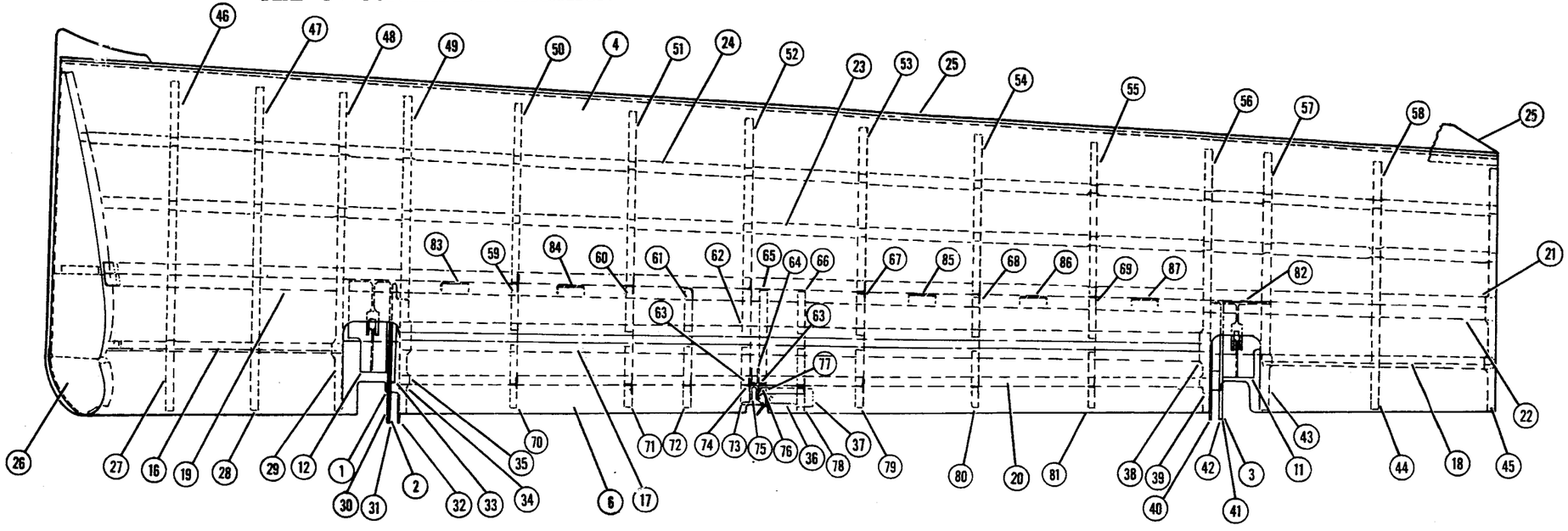
CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-328; 25-002 THRU 25-205; 35-002 THRU 35-059; 36-002 THRU 36-017
2	23-040 THRU 23-099; 24-100 THRU 24-328; 25-002 THRU 25-205; 35-002 THRU 35-059; 36-002 THRU 36-017
3	24-270 THRU 24-328; 25-115 THRU 25-205; 35-002 THRU 35-059; 36-002 THRU 36-017
4	23-002 THRU 23-099; 24-100 THRU 24-229; 25-002 THRU 25-061
5	24-230 THRU 24-328; 25-062 THRU 25-205; 35-002 THRU 35-059; 36-002 THRU 36-017

NOTES:

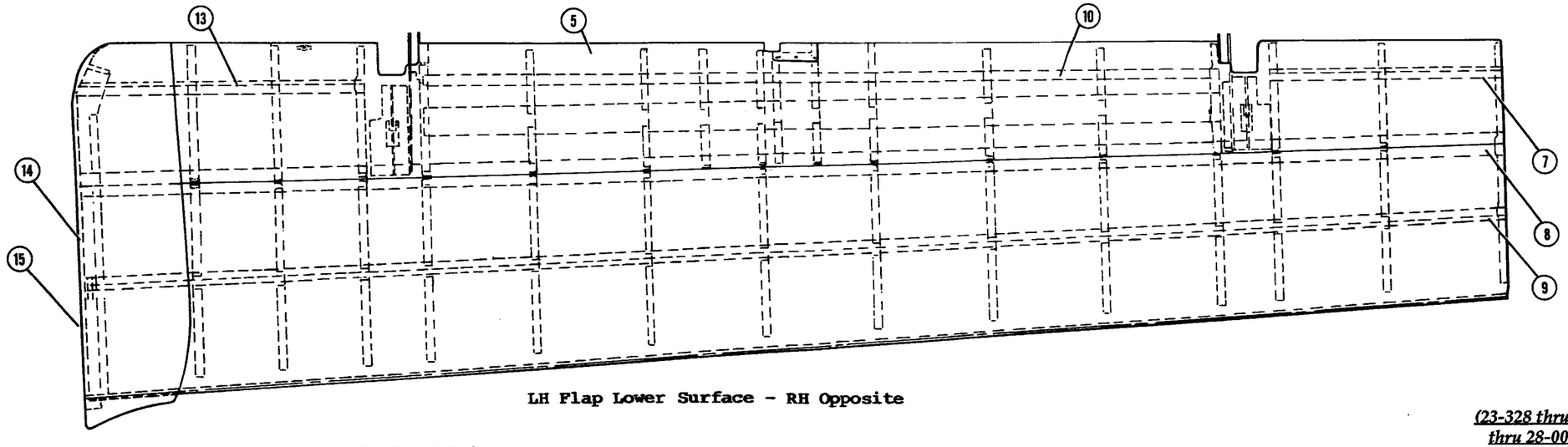
1 Condition 1/4 hard.

Flap Repair Index
Figure 1 (Sheet 4 of 4)

FLAP - STRUCTURAL IDENTIFICATION



LH Flap Upper Surface - RH Opposite



LH Flap Lower Surface - RH Opposite

Flap Repair Index
Figure 2 (Sheet 1 of 5)

(23-328 thru 24-357; 25-205 thru 25-373; 28-001 thru 28-004; 29-001 thru 29-004; 35-060 and Subsequent; 36-018 and Subsequent; 31-002 and Subsequent)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2325000	Flap Instl.	1	–	–	–	–
1	2325000	• Flap Nose Roller	1	–	–	–	51-71-00
	2325022	• Track Assy., Outboard	1	–	–	–	–
2	2325022	• • Track	1	–	–	–	51-71-00
	2325022	• Track Assy., Inboard	1	–	–	–	–
3	2325022	• • Track	1	–	–	–	51-71-00
	2625010	• Flap Assy., LH & RH	1	–	–	–	–
4	2625010	• • Skin, Upper Trailing Edge	1	2024-T3 Clad	0.032	F14-1int F1ext	51-70-02
5	2625010	• • Skin, Lower Trailing Edge	1	2024-T3 Clad	0.025	F14-1int F1ext	51-70-02
6	2625010	• • Skin, Leading Edge	1	2024-T42 Clad	0.050	F14-1int F1ext	51-70-02
	2625010	• • Shim	2	2024-T3	0.040	–	Replace
	2625010	• • Shim	2	2024-T3	0.040	–	Replace
	2625010	• • Shim	2	2024-T3	0.040	–	Replace
	2625010	• • Shim	2	2024-T3	0.040	–	Replace
	2625010	• • Shim	2	2024-T3	0.040	–	Replace
7	2325010	• • Stringer, Lower	1	S-559	–	F4-1	51-70-04
8	2625015	• • Spar Cap, Lower	1	2014-T6 Clad	0.071	–	Replace
9	2325010	• • Stringer, Lower	1	S-559	–	F4-1	51-70-04
10	2325010	• • Stringer, Lower	1	2024-T42 Clad	0.063	F4-1	51-70-04
11	2625024	• • Fitting, Outboard	1	–	–	–	51-71-00
12	2625023	• • Fitting, Inboard	1	–	–	–	51-71-00
13	2325010	• • Stringer, Lower	1	S-559	–	F4-1	51-70-04
14	2425111	• • Fairing Support	1	2024-T42 Clad	0.032	–	Replace
15	2425111	• • Fairing, Flap	1	6061-T4 Clad	0.032	F4	Replace
16	2325010	• • Stringer, Upper Inboard	1	S-559	–	F4-1	51-70-04
17	2325010	• • Stringer, Upper Inboard	1	2024-T42 Clad	0.063	F4-1	51-70-04
18	2625015	• • Stringer, Upper Outboard	1	S-559	–	–	51-70-04
19	2625015	• • Doubler, Inboard	1	2024-T42 Clad	0.063	F4	51-70-04
20	2625010	• • Spar	1	2024-T42 Clad	0.063	F4	51-70-03
21	2325010	• • Spar Cap, Upper	1	2024-T3 Clad	0.063	F4-1	Replace
22	2625015	• • Doubler, Outboard	1	2024-T3 Clad	0.040	–	Replace
23	2625015	• • Stringer	1	2024-T3 Clad	0.032	–	51-70-04
24	2625015	• • Stringer	1	2024-T3 Clad	0.032	–	51-70-04
25	2325010	• • Trailing Edge Extrusion	5	S-639	–	F4-1	Replace
	3125001	• • Trailing Edge Extrusion	6	2024-T351	0.312	F4	Replace
26	2325010	• • Rib, Inboard	1	2024-T42 Clad	0.040	F4-1	51-70-03
27	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
28	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
29	2625010	• • Rib, Leading Edge	1	2024-T42	0.040	–	51-70-03
30	2325010	• • Nose Roller Support, Inboard	1	2024-T3 Clad	0.125	F4-1	Replace

Flap Repair Index
Figure 2 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
31	2325010	• • Rub Strip	1	301 Stainless 1	0.012	F4-1	Replace
32	2325010	• • Nose Roller Support, Inboard	1	301 Stainless 1	0.080	F4-1	Replace
33	2325010	• • Nose Roller Support, Inboard	1	2024-T42 Clad	0.050	F4-1	Replace
34	2325010	• • Reinforcement, Leading Edge Rib	1	2024-T42 Clad	0.040	F4-1	Replace
35	2625015	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	–	51-70-03
36	2625015	• • Access Cover	1	2024-T42 Clad	0.050	–	Replace
37	2325010	• • Doubler	1	2024-T42 Clad	0.032	F4-1	Replace
38	2625015	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	–	51-70-03
39	2325010	• • Backing Plate	1	2024-T3 Clad	0.050	F4-1	Replace
40	2325010	• • Nose Roller Support, Outboard	1	301 Stainless 1	0.080	–	Replace
41	2325010	• • Nose Roller Support, Outboard	1	2024-T3 Clad	0.125	F4-1	Replace
42	2325010	• • Rub Strip	1	301 Stainless 1	0.012	–	Replace
43	2625015	• • Rib, Leading Edge	1	2024-T42 Clad	0.040	–	51-70-03
44	2325010	• • Rib, Leading Edge	1	2024-T42 Clad	0.032	F4-1	51-70-03
45	2325010	• • Rib, Outboard	1	2024-T42 Clad	0.040	F4-1	51-70-03
46	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
47	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
48	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
49	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
50	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
51	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
52	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
53	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
54	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
55	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
56	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
57	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
58	2325010	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
59	2325010	• • Rib, Trailing Edge	3	2024-T42 Clad	0.032	F4-1	51-70-03
	2625046	• • Rib, Trailing Edge	4	2024-T42 Clad	0.032	–	51-70-03
60	2325010	• • Rib, Trailing Edge	3	2024-T42 Clad	0.032	F4-1	51-70-03
	2625046	• • Rib, Trailing Edge	4	2024-T42 Clad	0.032	–	51-70-03
61	2325010	• • Rib, Trailing Edge	3	2024-T42 Clad	0.032	F4-1	51-70-03
	2625046	• • Rib, Trailing Edge	4	2024-T42 Clad	0.032	–	51-70-03
62	2325010	• • Rib, Trailing Edge	3	2024-T42 Clad	0.040	F4-1	51-70-03
	2625046	• • Rib, Trailing Edge	4	2024-T42 Clad	0.040	–	51-70-03
63	2325010	• • Reinforcing Angle	1	S-575	–	–	Replace
64	2325010	• • Reinforcing Channel	1	2024-T4	0.750	–	Replace
65	2325010	• • Rib	3	2024-T42	0.040	F4-1	51-70-03
	2625046	• • Rib	4	2024-T42	0.040	–	51-70-03
66	2325010	• • Rib	3	2024-T42	0.032	F4-1	51-70-03
	2625046	• • Rib	4	2024-T42	0.032	–	51-70-03

Flap Repair Index
Figure 2 (Sheet 3 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
67	2325010	• • Rib	3	2024-T42	0.032	F4-1	51-70-03
	2625046	• • Rib	4	2024-T42	0.032	–	51-70-03
68	2325010	• • Rib	3	2024-T42	0.032	F4-1	51-70-03
	2625046	• • Rib	4	2024-T42	0.032	–	51-70-03
69	2325010	• • Rib	3	2024-T42	0.032	F4-1	51-70-03
	2625046	• • Rib	4	2024-T42	0.032	–	51-70-03
70	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
71	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
72	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
73	2625046	• • Rib, Leading Edge	4	2024-T42	0.040	–	51-70-03
74	2325010	• • Reinforcing Angle	1	S-575	–	–	Replace
75	2325010	• • Channel, Actuator Attach	1	2024-T4	0.750	–	Replace
76	2325010	• • Reinforcing Angle	1	S-575	–	–	Replace
77	2625046	• • Rib, Leading Edge	4	2024-T42	0.040	–	51-70-03
78	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
79	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
80	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
81	2625046	• • Rib, Leading Edge	4	2024-T42	0.032	–	51-70-03
82	2625015	• • Doubler	1	2024-T3 Clad	0.040	–	Replace
83	2625015	• • Channel, Reinforcing	4	2024-T42 Clad	0.050	–	Replace
84	2625015	• • Channel, Reinforcing	4	2024-T42 Clad	0.050	–	Replace
85	2625015	• • Channel, Reinforcing	4	2024-T42 Clad	0.050	–	Replace
86	2625015	• • Channel, Reinforcing	4	2024-T42 Clad	0.050	–	Replace
87	2625015	• • Channel, Reinforcing	4	2024-T42 Clad	0.050	–	Replace

Flap Repair Index
Figure 2 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	23-328 THRU 24-357; 25-205 THRU 25-373; 28-001 THRU 28-004; 29-001 THRU 29-004; 35-060 AND SUBSEQUENT; 36-018 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
2	24-351 THRU 24-357; 25-227 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-127 AND SUBSEQUENT; 36-033 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
3	24-328 THRU 24-356; 25-205 THRU 25-269 AND 25-271; 35-060 THRU 35-230; 36-018 THRU 36-044
4	24-357; 25-270, 25-272 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-231 AND SUBSEQUENT; 36-045 AND SUBSEQUENT; 31-001 AND SUBSEQUENT
5	24-357; 25-270, 25-272 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-231 AND SUBSEQUENT; 36-045 AND SUBSEQUENT
6	31-001 AND SUBSEQUENT

NOTES:

1 Condition 1/4 hard.

Flap Repair Index
Figure 2 (Sheet 5 of 5)

FLAP - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the flaps or flap structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

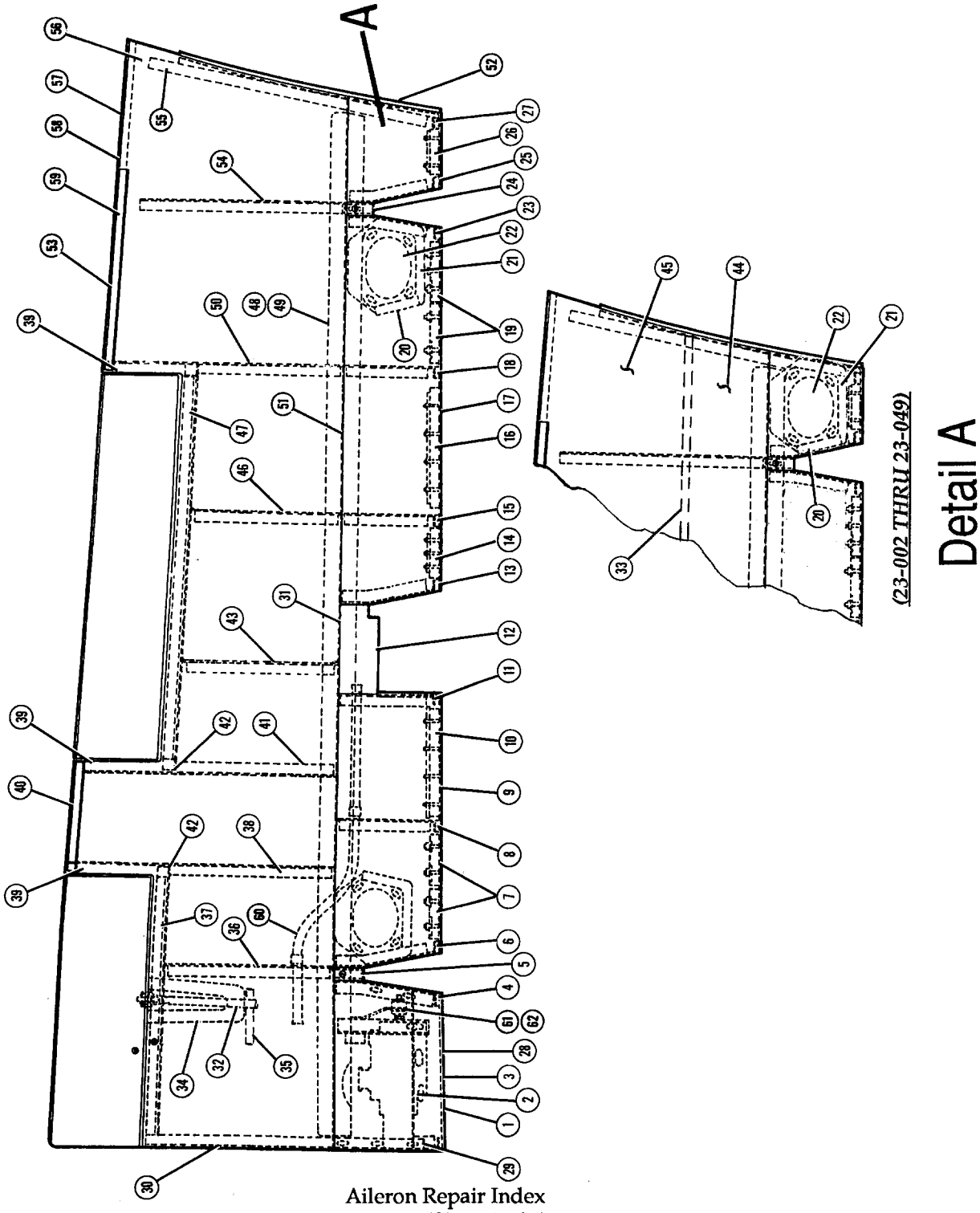
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

FLAP - REPAIR

1. **APPROVED REPAIRS**
   A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the flap system fittings and attaching parts.

AILERON - STRUCTURAL IDENTIFICATION



Aileron Repair Index
Figure 1 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322550	Aileron Instl., LH & RH	1	–	–	–	–
	2324011	• Aileron Structure Assy.	1	–	–	–	–
1	2324011	• • Filler (LH Only)	1	2024-T3 Clad	0.032	–	Replace
2	2324011	• • Bracket Assy. (LH Only)	1	–	–	–	Replace
	2324011	• • • Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2324011	• • • Channel	1	2024-T42 Clad	0.040	F4-1	Replace
3	2324011	• • Skin, L. E. (LH Only)	2	2024-T3 Clad	0.032	F4-1	51-70-02
	2324011	• • Skin, L. E. (LH Only)	4	2024-T3 Clad	0.040	F4-1	51-70-02
	2324011	• • Skin, L. E. (RH Only)	6	2024-T3 Clad	0.032	F4-1	51-70-02
	2324011	• • Skin, L. E. (RH Only)	3	2024-T3 Clad	0.040	F4-1	51-70-02
4	2324011	• • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
	2324011	• • Doubler	2	2024-T3	0.040	F4-1	51-70-03
5	2424001	• • Fairing, Inboard Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
	2324011	• • Rib Assy.	1	–	–	–	51-70-03
6	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
7	2324011	• • Balance Weight	7	Antimony Lead	–	–	51-70-03
	2324011	• • Balance Weight (2 ea.)	8	Antimony Lead	–	–	51-70-03
8	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
9	2324011	• • Skin	2	2024-T3 Clad	0.032	F14-1int F1ext	51-70-02
	2324011	• • Skin	4	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
10	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
11	2324011	• • Rib, Nose	1	2024-T42 Clad	0.063	F4-1	51-70-03
	2324011	• • Clip Assy.	3	–	–	–	Replace
		• • • Clip	3	2024-T42 Clad	0.050	F4-1	Replace
	2324011	• • Yoke Support, Actuator	1	S-611	–	F4-1	51-70-03
12	2324011	• • Fairing, Center Hinge	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-00
	2324011	• • Bracket Assy.	1	–	–	–	–
	2324011	• • • Bracket, Yoke Support	6	S-611	–	–	Replace
	2324011	• • • Bracket, Yoke Support	3	2024-T42 Clad	0.071	F4-1	Replace
13	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
14	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
15	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
16	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace

Aileron Repair Index
Figure 1 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
17	2324011	• • *Skin*	2	*2024-T42 Clad*	*0.032*	*F14-1int* F1ext	*51-70-03*
	2324011	• • Skin	4	2024-T42 Clad	0.040	F14-1int F1ext	51-70-03
18	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	Replace
19	2324011	• • Balance Weight	1	Antimony Lead	–	–	51-70-02
20	2324011	• • Spacer (2 ea.)	1	2024-T3 Clad	0.032	F4-1	51-70-03
21	2324011	• • Doubler (2 ea.)	1	2024-T3 Clad	0.032	F4-1	Replace
22	2324011	• • Access Cover (2 ea.)	1	2024-T3 Clad	0.064	F14-1int F1ext	Replace
23	2324011	• • Rib Assy.	1	2024-T42 Clad	0.040	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
24	2424001	• • Fairing, Outbd Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
25	2324011	• • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
26	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
27	2624010	• • Skin	2	2024-T3 Clad	0.032	F14-1int F1ext	51-70-02
	2624010	• • Skin	4	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
28	2324011	• • Access Door (LH Only)	2	2024-T42 Clad	0.040	F14-1int F1ext	Replace
29	2424001	• • Clip	3	2024-T42	0.040	F4-1	Replace
30	2324011	• • Rib, Inboard Closing	1	2024-T42 Clad	0.025	F4-1	Replace
31	2324011	• • Rib, Middle Hinge	1	2024-T42 Clad	0.050	F4-1	Replace
32	*2324011*	• • *Rod Assy., Tab Actuator*	*1*	–	–	*F8-1*	*Replace*
	2324011	• • • Tube Assy., Tab Actuator	1	–	–	F8-1	Replace
	2324011	• • • • Tube, Tab Actuator	1	4130 STL Norm.	0.035	F8-1	Repace
33	2434011	• • Stringer	6	S-559	–	F4-1	Replace
34	2434011	• • Fairing	1	2024-T42 Clad	0.025	F4-1	Replace
35	2423011	• • Doubler	6	2024-T42 Clad	0.032	F4-1	Replace
36	2324011	• • Rib Assy. (LH Only)	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324001	• • Rib (RH Only) (2 ea.)	1	2024-T42 Clad	0.025	F4-1	51-70-03
37	2324011	• • Spar (LH Only)	1	2024-T42 Clad	0.025	F4-1	51-70-03
38	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
39	2324011	• • Clip	1	2024-T3 Clad	0.025	F4-1	Replace
40	2324011	• • Trailing Edge Extrusion	1	S-639	–	F7-6	Replace
	2324011	• • Spoiler Tabs	1	2024-T3 Clad	0.040	F4	Replace
41	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
42	2324011	• • Clip (LH Only) (2 ea.)	1	2024-T42 Clad	0.050	F4-1	Replace
	2324011	• • Clip	1	2024-T42 Clad	0.025	F4-1	Replace
43	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
44	2324011	• • Skin	6	2024-T3 Clad	0.050	F14-1int F1ext	51-70-02

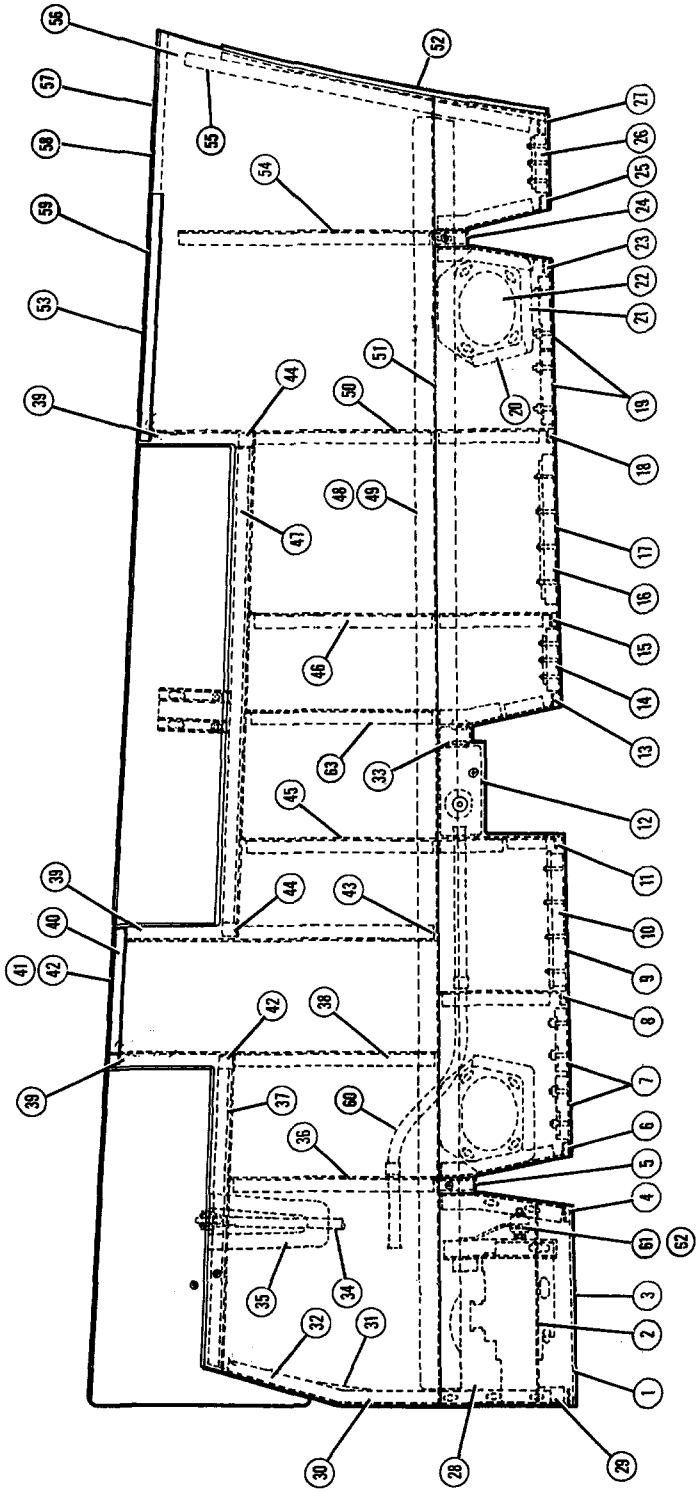
Aileron Repair Index
Figure 1 (Sheet 3 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
45	2324011	• • Skin	6	2024-T3 Clad	0.050	F14-1int F1ext	51-70-02
46	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
47	2324011	• • Spar	1	2024-T42 Clad	0.032	F4-1	51-70-03
48	2324011	• • Spar Cap, Lower	5	2024-T3 Clad	0.040	F4-1	Replace
49	2324011	• • Spar Cap, Upper	1	2024-T3 Clad	0.040	F4-1	Replace
	2324011	• • Spar Cap, Upper (LH Only)	2	2024-T3 Clad	0.040	F4-1	Replace
	2324011	• • Spar Cap, Upper (RH Only) (2)	3	2024-T3 Clad	0.040	F4-1	Replace
50	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
51	2324011	• • Spar	1	2024-T42 Clad	0.032	F4-1	51-70-03
52	2324011	• • Seal Assy.	1	–	–	–	Replace
	2324011	• • • Hat Section	1	2024-T4Clad	0.020	F4-1	Replace
	2324011	• • • Channel	1	2024-T4Clad	0.020	F4-1	Replace
53	2324011	• • Trailing Edge Extrusion	3	S-639	–	–	Replace
54	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
55	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
56	2324011	• • Skin, Upper	3	2024-T3 Clad	0.025	F14-1int F1ext	51-70-02
57	2324011	• • Skin, Lower	3	2024-T3 Clad	0.025	F4-1int F1ext	51-70-02
58	2324011	• • Trailing Edge Extrusion	3	2024-T3 Clad	0.025	F7-6	51-70-02
59	2324011	• • • Spoiler Tab	1	2024-T3	0.040	F4	Replace
60	2324011	• • Conduit	1	S-5052	0.035	F4-1	Replace
61	2324011	• • Link (LH Only)	5	2024-T42 Clad	0.040	F4-1	Replace
62	2324011	• • Arm (LH Only)	5	2024-T4	0.063	F4-1	Replace
	2333008	• • Arm (LH Only)	5	2024-T4	0.375	F4-1	Replace

CODES	EFFECTIVITIES
1	23-002 THRU 23-099
2	23-002 THRU 23-034
3	23-050 THRU 23-099
4	23-035 THRU 23-049
5	23-035 THRU 23-099
6	23-002 THRU 23-049
7	23-002 THRU 23-065
8	23-066 THRU 23-099

Aileron Repair Index
Figure 1 (Sheet 4 of 4)

AILERON - STRUCTURAL IDENTIFICATION



4-61B

Aileron Repair Index
Figure 2 (Sheet 1 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322550	Aileron Instl., LH & RH	1	–	–	–	–
	2324011	• Aileron Structure Assy.	1	–	–	–	–
1	2324011	• • Filler (LH Only)	1	2024-T3 Clad	0.032	–	Replace
2	2324011	• • Bracket Assy., (LH Only)	1	–	–	–	Replace
	2324011	• • • Bracket	1	2024-T42 Clad	0.063	F4-1	Replace
	2324011	• • • Channel	1	2024-T42 Clad	0.040	F4-1	Replace
3	2324011	• • Skin, L. E., (LH Only)	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
ext	2324011	• • Skin, L. E., (RH Only)	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
4	2324011	• • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
	2324011	• • Doubler	1	2024-T3	0.040	F4-1	51-70-03
5	2424001	• • Fairing, Inboard Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
	2324011	• • Rib Assy.	1	–	–	–	51-70-03
6	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
7	2324011	• • Balance Weight (2 ea.)	1	Antimony Lead	–	–	51-70-00
8	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
9	2324011	• • Skin	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
10	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
11	2324011	• • Rib, Nose	1	2024-T42 Clad	0.063	F4-1	51-70-03
	2324011	• • Clip Assy.	1	–	–	–	Replace
		• • • Clip	1	2024-T42 Clad	0.050	F4-1	Replace
	2324011	• • Yoke Support, Actuator	1	S-611	–	F4-1	51-70-03
12	2324011	• • Fairing, Center Hinge	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-00
	2324011	• • Bracket Assy.	2	–	–	–	–
	2324011	• • • Bracket, Yoke Support	2	2024-T42 Clad	0.071	F4-1	Replace
	2324020	• • Fitting	3	356 AL Alloy	–	–	Replace
13	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
14	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
15	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
16	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
17	2324011	• • Skin	1	2024-T42 Clad	0.040	F14-1int F1ext	51-70-03
18	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	Replace
19	2324011	• • Balance Weight (2 ea.)	1	Antimony Lead	–	–	51-70-02
20	2324011	• • Spacer (2 ea.)	1	2024-T3 Clad	0.032	F4-1	51-70-03

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Figure 2 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
21	2324011	• • *Doubler (2 ea.)*	1	*2024-T3 Clad*	*0.032*	*F4-1*	*Replace*
22	2324011	• • Access Cover (2 ea.)	1	2024-T3 Clad	0.064	F14-1int F1ext	Replace
23	2324011	• • Rib Assy.	1	2024-T42 Clad	0.040	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
24	2424001	• • Fairing, Outbd Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
25	2324011	• • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
26	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
27	2624010	• • Skin	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
28	2324011	• • Access Door (LH Only)	1	2024-T42 Clad	0.040	F14-1int F1ext	Replace
29	2424001	• • Clip	1	2024-T42	0.040	F4-1	Replace
	2324001	• • Support Angle	1	20244-T42	0.063	F4-1	Replace
30	2324011	• • Rib, Inboard Closing	1	2024-T42 Clad	0.025	F4-1	Replace
31	2324011	• • Gussett (LH Only)	1	2024-T4	0.040	F4-1	Replace
32	2324011	• • Splice Plate (LH Only)	3	2024-T3 Clad	0.050	F4-1	Replace
	2324011	• • Clip (LH Only)	6	2024-T3	0.032	F4-1	Replace
	2324011	• • Clip (LH Only)	7	2024-T3 Clad	0.050	F4-1	Replace
	2324011	• • Splice Plate (LH Only)	1	2024-T3 Clad	0.032	F4-1	Replace
	2324011	• • Filler (LH Only)	1	2024-T42 Clad	0.063	F4-1	Replace
33	2324011	• • Rib, Middle Hinge	1	2024-T42 Clad	0.050	F4-1	Replace
34	2324011	• • Rod Assy., Tab Actuator	1	–	–	F8-1	Replace
	2324011	• • • Tube Assy., Tab Actuator	1	–	–	F8-1	Replace
	2324011	• • • • *Tube, Tab Actuator*	1	*4130 STL Norm.*	*0.035*	*F8-1*	*Repace*
35	2434011	• • Fairing	1	2024-T42 Clad	0.025	F14-1int F1ext	Replace
36	2324011	• • Rib Assy., (LH Only)	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • Rib (RH Only) (2 ea.)	1	2024-T42 Clad	0.025	F4-1	51-70-03
37	2324011	• • Spar (LH Only)	1	2024-T42 Clad	0.025	F4-1	51-70-03
38	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
39	2324011	• • Clip	1	2024-T3 Clad	0.025	F4-1	Replace
40	2324011	• • Trailing Edge Extrusion	1	S-639	–	F7-6	Replace
41	2324011	• • Spoiler Tabs	4	2024-T3 Clad	0.040	F4	Replace
	2324011	• • Spoiler Tabs	5	2024-T3 Clad	0.100	F4	Replace
42	2324011	• • Clip	1	2024-T42 Clad	0.025	F4-1	Replace
43	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
44	2324011	• • Clip (LH Only) (2 ea.)	1	2024-T42 Clad	0.050	F4-1	Replace
45	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
46	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
47	2324011	• • Spar	1	2024-T42 Clad	0.032	F4-1	51-70-03

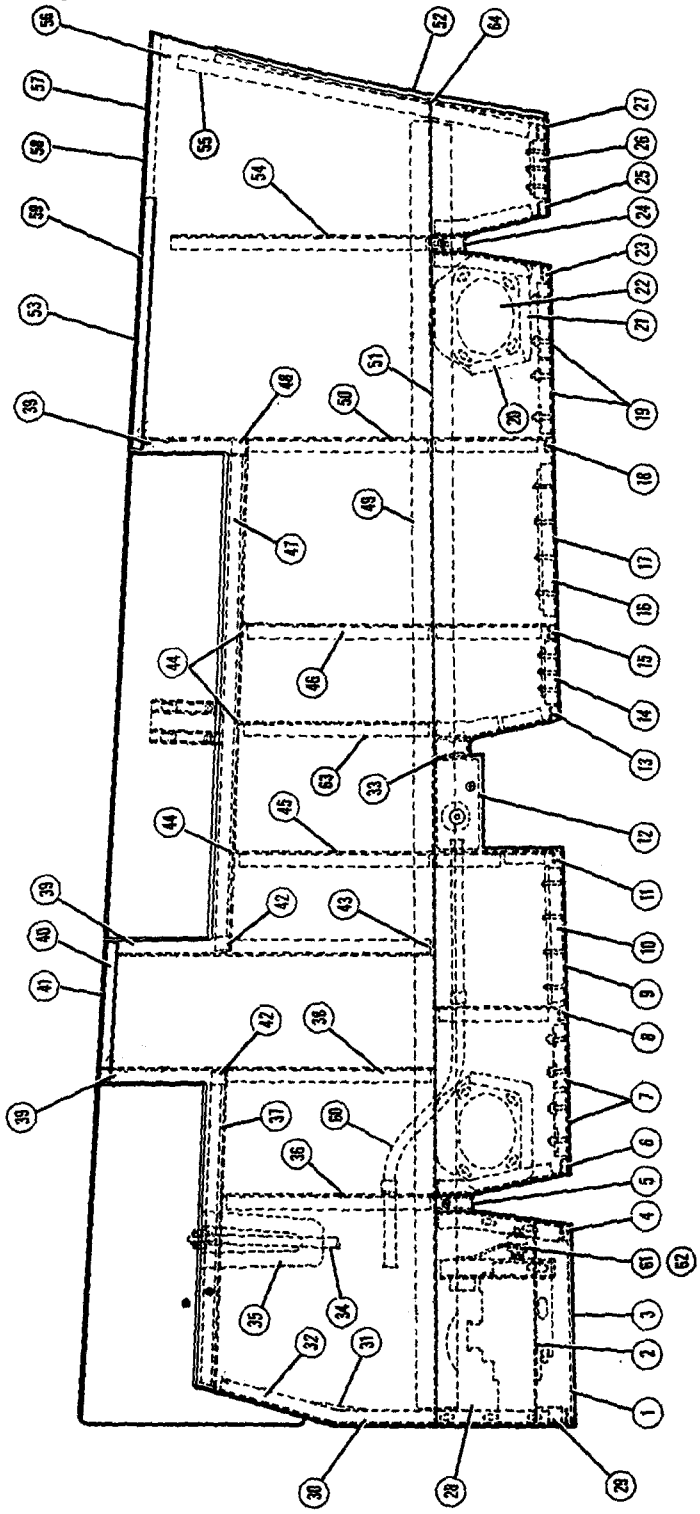
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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
48	2324011	• • Spar Cap, Lower	1	2024-T3 Clad	0.040	F4-1	Replace
49	2324011	• • Spar Cap, Upper	1	2024-T3 Clad	0.040	F4-1	Replace
	2324011	• • Spar Cap, Upper (RH Only)	1	2024-T3 Clad	0.040	F4-1	Replace
50	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
51	2324011	• • Spar	1	2024-T42 Clad	0.032	F4-1	51-70-03
52	2324011	• • Seal Assy.	1	–	–	–	Replace
	2324011	• • • Hat Section	1	2024-T4Clad	0.020	F4-1	Replace
	2324011	• • • Channel	1	2024-T4Clad	0.020	F4-1	Replace
53	2324011	• • Trailing Edge Extrusion	1	S-639	–	–	Replace
54	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
55	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
56	2324011	• • Skin, Upper	1	2024-T3 Clad	0.025	F14-1int F1ext	51-70-02
57	2324011	• • Skin, Lower	1	2024-T3 Clad	0.025	F4-1int F1ext	51-70-02
58	2324011	• • Trailing Edge Extrusion	1	2024-T3 Clad	0.025	F7-6	51-70-02
59	2324011	• • • Spoiler Tab	4	2024-T3	0.040	F4	Replace
	2324011	• • • Spoiler Tab	5	2024-T3	0.100	F4	Replace
60	2324011	• • Conduit	1	S5052-0	0.035	F4-1	Replace
61	2324011	• • Link (LH Only)	1	2024-T42 Clad	0.040	F4-1	Replace
62	2333008	• • Arm (LH Only)	1	2024-T4	0.375	F4-1	Replace
63	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03

CODES	EFFECTIVITIES
1	24-100 THRU 24-154
2	24-100 THRU 24-121 AND 24-123
3	24-122, 24-124 THRU 24-154
4	24-100 THRU 24-129
5	24-130 THRU 24-154
6	24-100 THRU 24-109
7	24-110 THRU 24-154

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322550	Aileron Instl., LH & RH	1	–	–	–	–
	2424000	• Aileron Assy.	1	–	–	–	–
1	2324011	• • Filler (LH Only)	1	2024-T3 Clad	0.032	–	Replace
2	2324011	• • Bracket Assy. (LH Only)	2	–	–	–	Replace
	2324011	• • • Bracket	2	2024-T42 Clad	0.063	F4-1	Replace
	2324011	• • • Channel	2	2024-T42 Clad	0.040	F4-1	Replace
	2324011	• • • Clip	2	2024-T3	0.063	F4-1	Replace
	2424001	• • Bracket Assy.	3	–	–	–	Replace
	2424001	• • • Bracket	3	2024-T42 Clad	0.063	F4-1	Replace
	2324011	• • • Channel	3	2024-T42 Clad	0.040	F4-1	Replace
	2324011	• • • Clip	3	2024-T3	0.063	F4-1	Replace
3	2324011	• • Skin, L. E. (LH Only)	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
	2324011	• • Skin, L. E. (RH Only)	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
4	2324011	• • Rib Assy.	4	–	–	–	51-70-03
	2324011	• • • Rib	4	2024-T42 Clad	0.040	F4-1	51-70-03
	2324011	• • • Doubler	4	2024-T3	0.040	F4-1	51-70-03
	2424001	• • Rib Assy.	5	–	–	–	51-70-03
	2424001	• • • Rib	5	2024-T42 Clad	0.040	F4-1	51-70-03
	2324028	• • • Angle	5	S-608	–	–	51-70-03
5	2424001	• • Fairing, Inboard Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
6	2324011	• • Rib Assy.	4	–	–	–	51-70-03
	2324011	• • • Rib	4	2024-T42 Clad	0.040	F4-1	51-70-03
	2324011	• • • Doubler	4	2024-T3	0.040	F4-1	51-70-03
	2424001	• • Rib Assy.	5	–	–	–	51-70-03
	2424001	• • • Rib	5	2024-T42 Clad	0.040	F4-1	51-70-03
	2324028	• • • Angle	5	S-608	–	–	51-70-03
7	2324011	• • Balance Weight (2 ea)	1	Antimony Lead	–	–	51-70-00
8	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
9	2324011	• • Skin	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
10	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
11	2324011	• • Rib Assy., Nose	1	–	–	–	51-70-03
	2324011	• • Rib	1	2024-T42 Clad	0.063	F4-1	51-70-03
	2324011	• • Clip Assy.	1	–	–	–	Replace
		• • • Clip	1	2024-T42 Clad	0.050	F4-1	Replace
	2324011	• • Yoke Support, Actuator	1	S-611	–	F4-1	51-70-03
12	2324011	• • Fairing, Center Hinge	1	2024-T3 Clad	0.040	–	51-70-00
	2324020	• • Fitting	1	356 Al Alloy	–	–	Replace
13	2324011	• • Rib Assy.	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.040	F4-1	51-70-03
14	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
15	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03

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Figure 3 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
16	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
17	2324011	• • Skin	1	2024-T42 Clad	0.040	F14-1int F1ext	51-70-03
18	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	Replace
19	2324011	• • Balance Weight (2 ea.)	1	Antimony Lead	–	–	51-70-02
20	2324011	• • Spacer (2 ea.)	1	2024-T3 Clad	0.032	F4-1	51-70-03
21	2324011	• • Doubler (2 ea.)	1	2024-T3 Clad	0.032	F4-1	Replace
22	2324011	• • Access Cover (2 ea.)	1	2024-T3 Clad	0.064	F14-1int F1ext	Replace
23	2324011	• • Rib Assy.	4	–	–	–	51-70-03
	2324011	• • • Rib	4	2024-T42 Clad	0.040	F4-1	51-70-03
	2324011	• • • Doubler	4	2024-T3	0.040	F4-1	51-70-03
	2424001	• • Rib Assy.	5	–	–	–	51-70-03
	2424001	• • • Rib	5	2024-T42 Clad	0.040	F4-1	51-70-03
	2324028	• • • Angle	5	S-608	–	–	51-70-03
24	2324011	• • Fairing, Outbd Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
25	2324011	• • Rib Assy.	4	–	–	–	51-70-03
	2324011	• • • Rib	4	2024-T42 Clad	0.040	F4-1	51-70-03
	2324011	• • • Doubler	4	2024-T3	0.040	F4-1	51-70-03
	2424001	• • Rib Assy.	5	–	–	–	51-70-03
	2424001	• • • Rib	5	2024-T42 Clad	0.040	F4-1	51-70-03
	2324028	• • • Angle	5	S-608	–	–	51-70-03
26	2324011	• • Balance Weight	1	Antimony Lead	–	–	Replace
27	2624010	• • Skin	1	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
28	2324011	• • Access Door (LH Only)	1	2024-T42 Clad	0.040	F14-1int F1ext	Replace
29	2424001	• • Clip	1	2024-T42	0.040	F4-1	Replace
	2324001	• • Support Angle (LH Only)	1	20244-T42	0.063	F4-1	Replace
30	2324028	• • Rib, Inboard Closing (LH Only)	1	2024-T42 Clad	0.025	–	Replace
	2324011	• • Rib, Inboard Closing (RH Only)	1	2024-T42 Clad	0.025	F4-1	Replace
	2324028	• • Clip (RH Only)	1	2024-T42 Clad	0.025	–	Replace
31	2324011	• • Gussett (LH Only) (2 ea.)	1	2024-T4	0.040	F4-1	Replace
32	2324011	• • Splice Plate (LH Only)	3	2024-T3 Clad	0.050	F4-1	Replace
	2324011	• • Clip (LH Only)	7	2024-T3 Clad	0.050	F4-1	Replace
	2324011	• • Splice Plate (LH Only)	1	2024-T3 Clad	0.032	F4-1	Replace
	2324011	• • Filler (LH Only)	1	2024-T42 Clad	0.063	F4-1	Replace
33	2324011	• • Filler	1	2024-T42 Clad	0.040	F4-1	Replace
34	2324011	• • Rod Assy., Tab Actuator	1	–	–	F8-1	Replace
	2324011	• • • Tube Assy., Tab Actuator	1	–	–	F8-1	Replace
	2324011	• • • • Tube, Tab Actuator	1	4130 STL Norm.	0.035	F8-1	Repace
35	2434011	• • Fairing	1	2024-T42 Clad	0.025	F4-1	Replace
36	2324011	• • Rib Assy. (LH Only)	1	–	–	–	51-70-03
	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • Rib (RH Only) (2 ea.)	1	2024-T42 Clad	0.025	F4-1	51-70-03
37	2324028	• • Spar (LH Only)	1	2024-T42 Clad	0.025	–	51-70-03

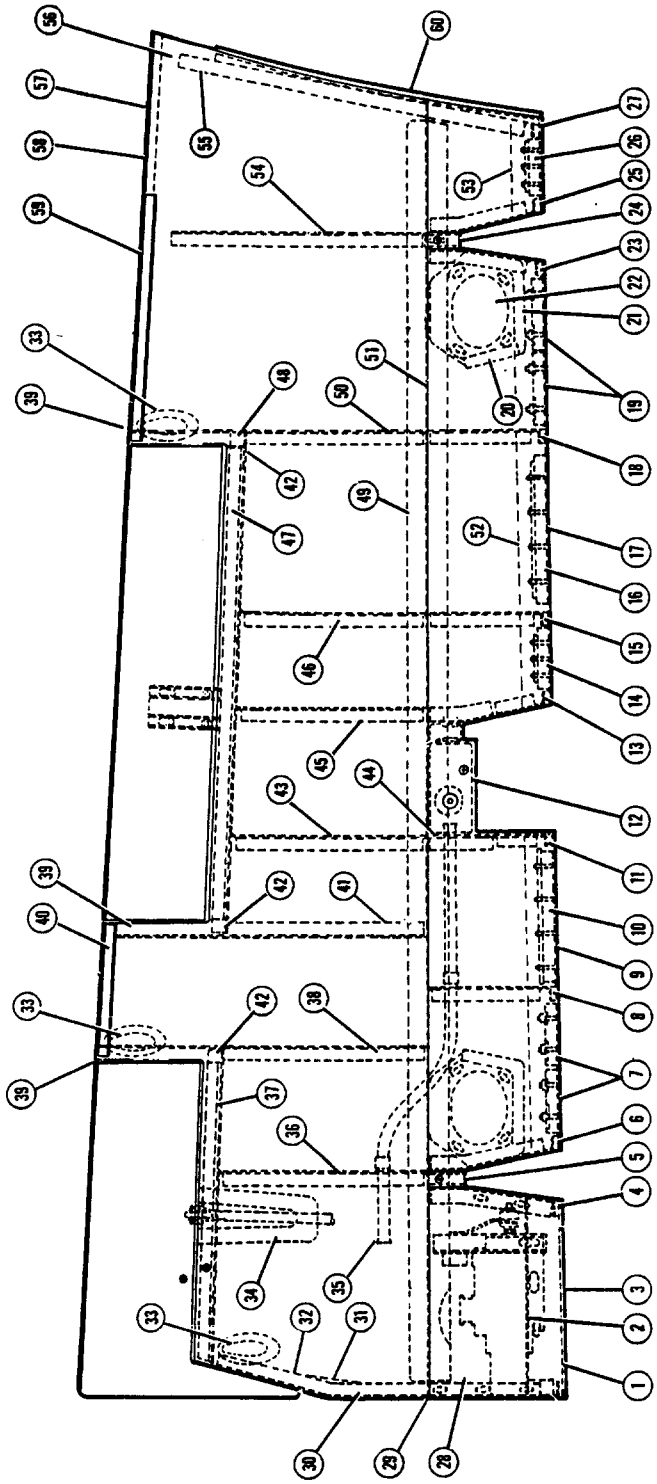
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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
38	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
39	2324011	• • Clip	1	2024-T3 Clad	0.025	F4-1	Replace
40	2324011	• • Trailing Edge Extrusion	1	S-639	–	F7-6	Replace
41	2324011	• • Spoiler Tabs	1	2024-T3 Clad	0.100	F4	Replace
42	2324011	• • Clip (3 ea.)	1	2024-T42 Clad	0.025	F4-1	Replace
43	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
44	2324011	• • Clip (LH Only) (3 ea.)	1	2024-T42 Clad	0.050	F4-1	Replace
45	2324028	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	–	51-70-03
	2324028	• • Clip	1	2024-T42 Clad	0.025	–	Replace
46	2324028	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	–	51-70-03
	2324028	• • Clip	1	2024-T42 Clad	0.025	–	Replace
47	2324028	• • Spar	1	2024-T42 Clad	0.032	–	51-70-03
48	2324011	• • Filler (LH Only) (3 ea.)	1	2024-T3 Clad	0.040	F4-1	Replace
	2324011	• • Filler (RH Only) (2 ea.)	1	2024-T3 Clad	0.040	F4-1	Replace
49	2324027	• • Spar Cap, Upper	1	2024-T3 Clad	0.040	–	Replace
	2324027	• • Spar Cap, Upper (RH Only) (2)	1	2024-T3 Clad	0.040	–	Replace
	2324027	• • Spar Cap, Lower	1	2024-T3 Clad	0.040	–	Replace
50	2324028	• • Rib	1	2024-T42 Clad	0.025	–	51-70-03
51	2324028	• • Spar	1	2024-T42 Clad	0.032	–	51-70-03
52	2324011	• • Seal Assy.	1	–	–	–	Replace
	2324011	• • • Hat Section	1	2024-T4Clad	0.020	F4-1	Replace
	2324011	• • • Channel	1	2024-T4Clad	0.020	F4-1	Replace
53	2324011	• • Trailing Edge Extrusion	1	S-639	–	–	Replace
54	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
55	2424001	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324028	• • Clip	1	2024-T3 Clad	0.025	–	Replace
56	2324027	• • Skin, Upper	1	2024-T3 Clad	0.025	–	51-70-02
57	2324027	• • Skin, Lower	1	2024-T3 Clad	0.025	–	51-70-02
58	2324011	• • Trailing Edge Extrusion	1	2024-T3 Clad	0.025	–	51-70-02
59	2324011	• • • Spoiler Tab	1	2024-T3	0.100	F4	Replace
60	2324011	• • Conduit	1	S5052-0	0.035	F4-1	Replace
61	2324011	• • Link (LH Only)	1	2024-T42 Clad	0.040	F4-1	Replace
	2324011	• • Arm (LH Only)	1	2024-T4	0.063	F4-1	Replace
62	2333008	• • Arm (LH Only)	1	2024-T4	0.375	F4-1	Replace
63	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324028	• • Clip	1	2024-T3 Clad	0.025	–	Replace
64	2324028	• • Angle	6	3034-T42 Clad	0.040	–	Replace

CODES	EFFECTIVITIES
1	24-155 THRU 24-229 EXCEPT 24-218
2	24-155 THRU 24-170
3	24-171 THRU 24-229 EXCEPT 24-218
4	24-155 THRU 24-159
5	24-160 THRU 24-229 EXCEPT 24-218
6	24-167 THRU 24-229 EXCEPT 24-218

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ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322550	Aileron Instl., LH & RH	1	–	–	–	–
	2324027	• Aileron Assy.	1	–	–	–	–
1	2324011	• • Clip (LH Only)	1	2024-T3 Clad	0.040	F4-1	Replace
2	2324028	• • Support Angle (LH Only)	1	2024-T42 Clad	0.063	–	Replace
3	2324027	• • Skin, Leading Edge	1	2024-0 Clad	0.040	–	51-70-02
4	2324028	• • Rib Assy.	1	–	–	–	51-70-03
	2324028	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2324028	• • • Angle	1	S-608	–	–	Replace
5	2424001	• • Fairing, Inboard Hinge (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
6	2324028	• • Rib Assy.	1	–	–	–	51-70-03
	2324028	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2324028	• • • Angle	1	S-608	–	–	51-70-03
7	2324028	• • Balance Weight	1	5% Antimony Lead	–	–	51-70-03
	2324028	• • Spar	1	2024-T42	0.040	–	Repalce
	2324028	• • Angle	1	S-608	–	–	Replace
	2324011	• • Access Door	1	2024-T3	0.064	F14-1int F1ext	Replace
	2324011	• • Spacer	1	2024-T3	0.032	F4-1	Replace
	2324011	• • Doubler	1	2024-T42	0.040	F4-1	Replace
8	2324028	• • Rib	1	2024-T42 Clad	0.025	–	51-70-03
	2324011	• • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
9	2324027	• • Skin	1	2024-T42 Clad	0.040	–	51-70-02
10	2324027	• • Balance Weight	1	Antimony Lead	–	–	Replace
11	2324028	• • Rib, Nose	1	2024-T42 Clad	0.050	–	51-70-03
12	2324020	• • Fitting, LH	1	Al Casting	–	–	51-70-00
13	2324028	• • Rib	1	2024-T42 Clad	0.050	–	51-70-03
14	2324028	• • Balance Weight	1	Antimony Lead	–	–	Replace
	2324028	• • Spar	1	2024-T42	0.040	–	Replace
15	2324028	• • Rib	1	2024-T42 Clad	0.025	–	51-70-03
	2324028	• • Angle	1	2024-T42 Clad	0.032	–	Replace
16	2324028	• • Balance Weight	1	Antimony Lead	–	–	Replace
17	2324027	• • Skin	1	2024-T42 Clad	0.040	–	51-70-03
18	2324028	• • Rib	1	2024-T42 Clad	0.025	–	Replace
	2324028	• • Angle	1	S-608	–	–	Replace
19	2324028	• • Balance Weight	1	5% Antimony Lead	–	–	51-70-02
20	2324028	• • Spacer	1	2024-T3 Clad	0.032	–	51-70-03
21	2324011	• • Doubler	1	2024-T3 Clad	0.040	F4-1	Replace
22	2324028	• • Access Cover	1	2024-T3 Clad	0.071	–	Replace

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Figure 4 (Sheet 2 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
23	2324028	• • Rib Assy.	1	–	–	–	51-70-03
	2324028	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2424001	• • • Angle	1	S-608	–	–	Replace
24	2324011	• • Fairing, Outboard Hinge (2 ea.)	1	2024-T3 Clad	0.040	F14-1int F1ext	Replace
25	2324028	• • Rib Assy.	1	–	–	–	51-70-03
	2324028	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2324028	• • • Angle	1	2024-T42 Clad	0.032	–	Replace
26	2324028	• • Balance Weight	1	Antimony Lead	–	–	Replace
27	2324028	• • Skin, Leading Edge	1	2024-T3 Clad	0.040	–	51-70-02
28	2324027	• • Access Door (LH Only)	1	2024-T42 Clad	0.040	–	Replace
29	2324028	• • • Bracket	1	2024-T42 Clad	0.063	–	Replace
	2324011	• • • Clip	1	2024-T3 Clad	0.063	F4-1	Replace
	2324028	• • • Channel	1	2024-T42 Clad	0.040	–	Replace
30	2324028	• • Rib, Inboard Closing (LH Only)	1	2024-T42 Clad	0.025	–	Replace
31	2324011	• • • Gusset	1	2024-T3 Clad	0.040	F4-1	Replace
32	2324011	• • • Clip	1	2024-T3 Clad	0.050	F4-1	Replace
33	2434001	• • Fairing	1	6061-0	0.020	–	Replace
34	2324011	• • Fairing	1	2024-T42 Clad	0.025	–	Replace
	2324011	• • Push Rod Assy.	1	4120 STL Norm	0.035	–	Replace
35	2324011	• • Conduit (LH Only)	1	S-5052-0	0.035	F4-1	Replace
36	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • Clip (LH Only)	1	2024-T42 Clad	0.025	F4-1	Replace
	2324011	• • Rib (RH Only) (2 ea.)	1	2024-T42	0.025	F4-1	Replace
37	2324028	• • Spar (LH Only)	1	2024-T42 Clad	0.040	–	51-70-03
38	2324028	• • Rib (LH Only)	1	2024-T42 Clad	0.025	–	51-70-03
39	2324028	• • Clip	1	2024-T3 Clad	0.025	–	Replace
40	2324011	• • Trailing Edge Extrusion	1	S-639	–	–	Replace
	2324028	• • Tab Angle	1	S-706	–	F14-1int	Replace
41	2324028	• • Rib	1	2024-T42 Clad	0.025	–	51-70-03
42	2324011	• • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
43	2324028	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	–	51-70-03
44	2324011	• • Filler	1	2024-T42 Clad	0.040	F4-1	Replace
45	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
46	2324011	• • Rib, Trailing Edge	1	2024-T42 Clad	0.025	F4-1	51-70-03
47	2324028	• • Spar	1	2024-0 Clad	0.032	–	51-70-03
48	2324028	• • Filler (LH Only)	1	2024-T3 Clad	0.050	–	Replace
49	2324027	• • Spar Cap, Upper	1	2024-T3 Clad	0.040	–	Replace
	2324027	• • Spar Cap, Upper, RH (2ea.)	1	2024-T3 Clad	0.040	–	Replace
	2324027	• • Spar Cap, Lower (LH Only)	1	2024-T3 Clad	0.040	–	Replace
50	2324028	• • Rib	1	2024-T42 Clad	0.025	–	51-70-03
51	2324011	• • Spar	2	2024-T42 Clad	0.032	F4-1	51-70-03
	2324028	• • Spar	3	2024-T42 Clad	0.032	–	51-70-03

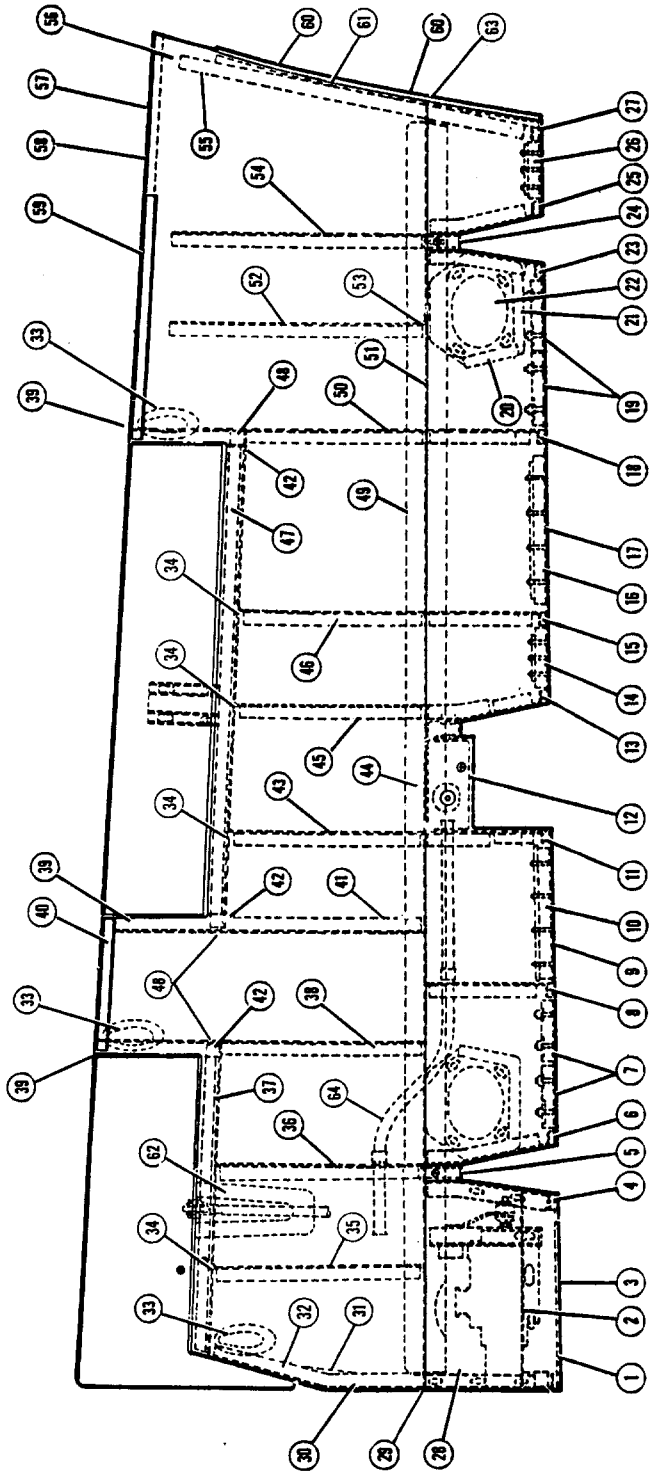
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Figure 4 (Sheet 3 of 4)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
52	2324028	• • Spar	1	2024-T42 Clad	0.025	–	51-70-03
53	2324028	• • Spar	1	2024-T42 Clad	0.025	–	Replace
54	2324011	• • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
55	2324028	• • Rib	1	2024-T42 Clad	0.025	–	51-70-03
56	2324027	• • Skin, Upper	1	2024-T3 Clad	0.025	–	51-70-02
57	2324027	• • Skin, Lower	1	2024-T3 Clad	0.025	–	51-70-02
58	2624011	• • Trailing Edge	1	S-639	–	–	Replace
59	2324028	• • Tab Angle	1	S-706	–	–	Replace
	2324028	• Angle	1	2024-T42 Clad	0.040	–	Replace
60	2324011	• • Seal Assy.	1	–	–	–	Replace
	2324011	• • • Hat Section	1	2024-T4Clad	0.020	F4-1	Replace
	2324011	• • • Channel	1	2024-T4Clad	0.020	F4-1	Replace

CODES	EFFECTIVITIES
1	25-002 THRU 25-067 EXCEPT 25-061
2	25-002 THRU 25-011
3	25-012 THRU 25-067 EXCEPT 25-061

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AILERON - STRUCTURAL IDENTIFICATION



(24-155 thru 24-357;
25-061, 25-067 thru 25-357;
28-001 thru 28-005;
29-001 thru 29-004;
31-001 and Subsequent;
35-002 and Subsequent;
36-002 and Subsequent)

4-61B

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Figure 5 (Sheet 1 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2422550	Aileron Instl., LH & RH	1	–	–	–	–
	2424000	• Aileron Assy.	1	–	–	–	–
	2424000	• • Aileron Structure Assy.	1	–	–	–	–
1	2324011	• • • Filler (LH Only)	1	2024-T3 Clad	0.032	–	Replace
2	2324028	• • Support Angle (LH Only)	1	2024-T42 Clad	0.063	–	Replace
3	2324011	• • • Skin, Leading Edge	1	2024-T42 Clad	0.040	F14-1int F1ext	51-70-02
4	2424001	• • Rib Assy.	1	–	–	–	51-70-03
	2424001	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2324028	• • • Angle	2	S-608	–	–	Replace
	2424001	• • • Angle	3	S-612	–	–	Replace
5	2324011	• • Fairing, Inboard Hinge (2 ea.)	4	2024-T3 Clad	0.025	F14-1int F1ext	Replace
	2424001	• • Fairing, Inboard Hinge (2 ea.)	5	2024-T3 Clad	0.040	–	Replace
6	2424001	• • Rib Assy.	1	–	–	–	51-70-03
	2424001	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2324028	• • • Angle	2	S-608	–	–	51-70-03
	2424001	• • • Angle	3	S-612	–	–	Replace
7	2424002	• • • Balance Weight	1	5% Antimony Lead	–	–	51-70-03
8	2324001	• • • Rib	1	2024-T42 Clad	0.025	–	51-70-03
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
9	2424000	• • • Skin, Leading Edge	1	2024-T42 Clad	0.040	–	51-70-02
10	2324011	• • • Balance Weight	1	Antimony Lead	–	–	Replace
11	2324011	• • • Rib, Nose	1	2024-T42 Clad	0.050	F4-1	51-70-03
12	2424030	• • • Fitting, LH	4	Al Casting	–	–	51-70-00
	2424033	• • • Fitting, LH	5	Al Casting	–	–	51-70-00
13	2324011	• • • Rib	12	2024-T42 Clad	0.050	F4-1	51-70-03
	2424001	• • • Rib	13	2024-T42 Clad	0.050	–	51-70-03
14	2324011	• • • Balance Weight	1	Antimony Lead	–	–	Replace
15	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
16	2324011	• • • Balance Weight	1	Antimony Lead	–	F4-1	Replace
17	2424000	• • • Skin	1	2024-T42 Clad	0.040	–	51-70-03
18	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	Replace
19	2424002	• • • Balance Weight (2 ea.)	1	5% Antimony Lead	–	–	51-70-02
20	2324011	• • • Spacer	1	2024-T3 Clad	0.032	F4-1	51-70-03
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.025	F4-1	Replace
21	2324011	• • • Doubler (2 ea.)	1	2024-T3 Clad	0.040	F4-1	Replace
22	2324028	• • Access Cover (2 ea.)	1	2024-T3 Clad	0.071	–	Replace
23	2424001	• • • Rib Assy.	1	–	–	–	51-70-03
	2324028	• • • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2424001	• • • Angle	2	S-608	–	–	Replace
	2424001	• • • Angle	3	S-612	–	–	Replace

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Figure 5 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
24	2424001	• • Fairing, Outboard Hinge (2 ea.)	1	2024-T3 Clad	0.040	–	Replace
25	2424001	• • • Rib Assy.	1	–	–	–	51-70-03
	2424001	• • • Rib	1	2024-T42 Clad	0.040	–	51-70-03
	2324028	• • • Angle	2	S-608	–	–	Replace
	2424001	• • • Angle	3	S-612	–	–	Replace
26	2324011	• • • Balance Weight	1	Antimony Lead	–	–	Replace
27	2324011	• • • Skin, Leading Edge	4	2024-T3 Clad	0.040	F14-1int F1ext	51-70-02
	2624010	• • • Skin, Leading Edge	5	2024-T3 Clad	0.040	–	51-70-02
28	2324011	• • Access Door (LH Only)	1	2024-T42 Clad	0.040	F14-1int F1ext	Replace
29	2424001	• • • Bracket	1	2024-T3 Clad	0.063	–	Replace
	2424001	• • • Clip	1	2024-T3 Clad	0.063	–	Replace
	2324011	• • • Channel	1	2024-0 Clad	0.040	–	Replace
30	2324028	• • • Rib, Inboard Closing, LH	1	2024-T42 Clad	0.025	–	Replace
	2324011	• • • Rib, Inboard Closing, RH	1	2024-T42 Clad	0.025	F4-1	Replace
31	2324011	• • • Gusset (LH Only) (2 ea.)	1	2024-T3 Clad	0.040	F4-1	Replace
32	2324011	• • • Clip (LH Only)	1	2024-T3 Clad	0.050	F4-1	Replace
33	2434001	• • Fairing	6	6061-0	0.020	–	Replace
34	2324028	• • • Clip, Rib Attach	7	2024-T42 Clad	0.025	–	Replace
35	2324028	• • • Rib	7	2024-T42 Clad	0.025	–	Replace
36	2324011	• • • Rib	1	2024-T42 Clad	0.025	F4-1	51-70-03
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.025	F4-1	Replace
37	2324028	• • • Spar (LH Only)	1	2024-T42 Clad	0.040	–	51-70-03
38	2324028	• • • Rib (LH Only)	1	2024-T42 Clad	0.025	–	51-70-03
39	2324028	• • • Clip	1	2024-T3 Clad	0.025	–	Replace
40	2324011	• • • Trailing Edge Extrusion	1	S-639	–	F7-6	Replace
41	2324028	• • • Rib	1	2024-T42 Clad	0.025	–	51-70-03
42	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.050	F4-1	Replace
43	2324028	• • • Rib, Trailing Edge	1	2024-T42 Clad	0.025	–	51-70-03
44	2424000	• • • Doubler (2 ea.)	1	302 Stainless [1]	0.016	–	Replace
45	2324028	• • • Rib, Trailing Edge	1	2024-T42 Clad	0.025	–	51-70-03
46	2324028	• • • Rib, Trailing Edge	1	2024-T42 Clad	0.025	–	51-70-03
47	2324028	• • • Spar	1	2024-T42 Clad	0.032	–	51-70-03
48	2324028	• • • Filler	10	2024-T3 Clad	0.050	–	Replace
	2324028	• • • Filler (LH Only) (3 ea.)	11	2024-T3 Clad	0.025	–	Replace
	2324028	• • • Filler (RH Only) (2 ea.)	11	2024-T3 Clad	0.025	–	Replace
49	2324028	• • • Spar Cap	1	2024-T3 Clad	0.040	–	Replace
50	2324028	• • • Rib	1	2024-T42 Clad	0.025	–	51-70-03
51	2324028	• • • Spar	1	2024-T42 Clad	0.032	–	51-70-03
52	2324028	• • • Rib	7	2024-T42 Clad	0.025	–	51-70-03
53	2324028	• • • Angle	7	2024-T42 Clad	0.050	–	Replace
54	2324011	• • • Rib	1	2024-T42 Clad	0.025	–	51-70-03
55	2424001	• • • Rib	1	2024-T42 Clad	0.025	–	51-70-03
56	2424000	• • • Skin, Upper	1	2024-T3 Clad	0.025	–	51-70-02

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Figure 5 (Sheet 3 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
57	2424000	• • • Skin, Lower	1	2024-T3 Clad	0.025	–	51-70-02
58	2624011	• • • Trailing Edge	1	S-639	–	–	Replace
59	2324028	• • • Tab Angle, LH	1	S-706	–	–	Replace
	2324028	• • • Tab Angle, RH	1	S-706	–	–	Replace
60	2324011	• • Seal Assy.	8	–	–	–	Replace
	2324011	• • • Hat Section	8	2024-T4Clad	0.020	F4-1	Replace
	2324011	• • • Channel	8	2024-T4Clad	0.020	F4-1	Replace
	2424001	• • Seal Assy.	9	–	–	–	Replace
	2324011	• • • Hat Section	9	2024-T4Clad	0.020	F4-1	Replace
	2324011	• • • Channel	9	2024-T4Clad	0.020	F4-1	Replace
61	2424001	• • Shim	4	▽2	0.125	–	Replace
62	2434011	• • Fairing	1	2024-T42 Clad	0.025	F4-1	Replace
63	2324028	• • Angle	1	2024-T42	0.040	–	Replace
64	2324011	• • Conduit	1	S-5052	0.035	F4-1	Replace

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Figure 5 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 THRU 31-014; 35-002 THRU 35-656; 36-002 THRU 36-059
3	31-015 AND SUBSEQUENT; 35-657 AND SUBSEQUENT; 36-060 AND SUBSEQUENT
4	24-218, 24-230 THRU 24-354; 25-061 25-067 THRU 25-209; 35-002 THRU 35-086; 36-002 THRU 36-021
5	24-355 THRU 24-357 AND ALL SPARES; 25-010 THRU 25-373 AND ALL SPARES; 28-002 THRU 28-005; 29-002 THRU 29-004; 31-001 AND SUBSEQUENT; 35-087 AND SUBSEQUENT AND ALL SPARES; 36-002 AND SUBSEQUENT AND ALL SPARES
6	25-292 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
7	24-356 AND 24-357; 25-235 THRU 25-373; 35-154 AND SUBSEQUENT; 36-039 AND SUBSEQUENT
8	24-218, 24-230 THRU 24-337; 25-061, 25-067 THRU 25-272
9	24-338 THRU 24-357 AND ALL SPARES; 25-213 THRU 25-373 AND ALL SPARES; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
10	24-332 AND 24-333; 25-207 AND 25-208; 35-075 THRU 35-083
11	24-334 THRU 24-357; 25-209 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-084 AND SUBSEQUENT; 36-021 AND SUBSEQUENT
12	24-218, 24-230 THRU 24-357; 25-061, 25-067 THRU 25-354; 28-001 THRU 28-005; 29-001 THRU 29-003; 35-002 THRU 35-463; 36-002 THRU 36-050
13	25-355 THRU 25-357; 29-004; 31-001 AND SUBSEQUENT; 35-464 AND SUBSEQUENT; 36-051 AND SUBSEQUENT

NOTES

[1] Condition Annealed

[2] Laminated shim stock, per MIL-S-22499, 2024 aluminum, 0.002 or 0.003 lamination, Comp 1, Type 1, Class 2.

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Figure 5 (Sheet 5 of 5)

AILERON - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the aileron or structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

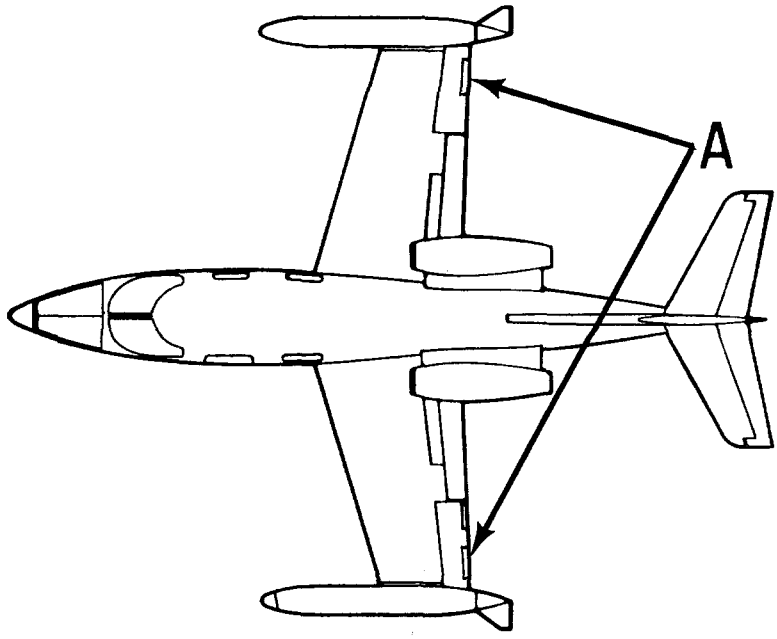
AILERON - REPAIR

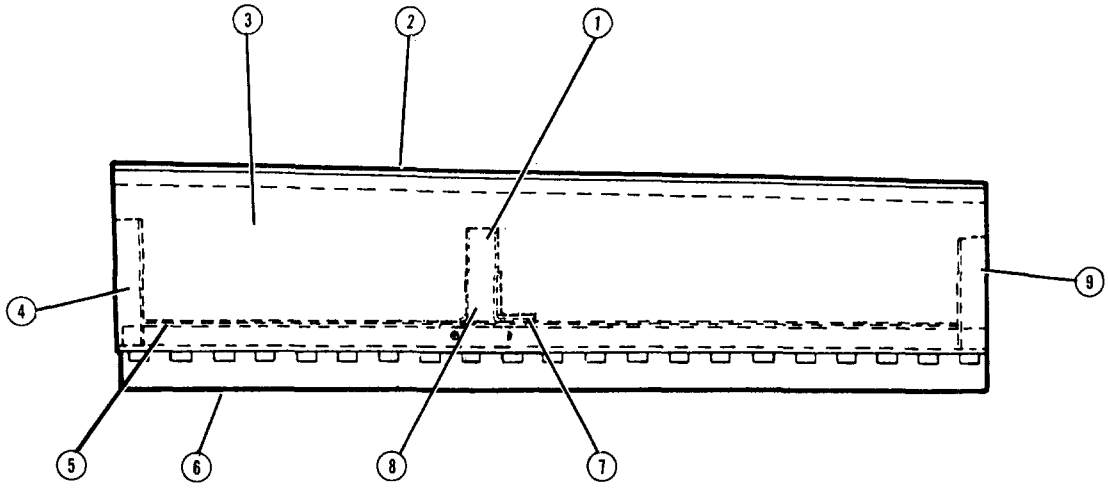
1. APPROVED REPAIRS

WARNING: A CONTROL SURFACE BALANCE CHECK MUST BE PERFORMED FOLLOWING REPAIR OF THE AILERON OR THE AILERON TRIM TAB.

A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the aileron system fittings and attaching parts.

AILERON BALANCE TAB - STRUCTURAL IDENTIFICATION





Detail A

Aileron Balance Tab Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2324011	Aileron Balance Tab Assy., LH & RH	1	–	–	–	–
1	2324011	• Arm Assy.	1	–	–	–	51-71-04
	2324011	• • Arm	1	2024-T42 Clad	0.063	–	–
	2324011	• Filler	1	2024-T3 Clad	0.090	–	–
2	2324011	• Trailing Edge	1	S-639	–	F7-6	–
3	2324011	• Skin, Lower	1	2024-T42 Clad	0.025	F14-1int F1ext	51-70-02
	2324011	• Skin, Upper	1	2024-T42 Clad	0.025	F14-1int F1ext	51-70-02
4	2324011	• Rib, Inbd	1	2024-T42 Clad	0.025	–	–
5	2324011	• Spar	1	2024-T42 Clad	0.032	–	–
6	2324011	• Hinge [1]	1	–	–	–	–
7	2324011	• • • Clip	1	2024-T3 Clad	0.025	–	Replace
	2324011	• • • Clip (LH Only)	1	2024-T42 Clad	0.040	–	Replace
8	2324011	• Rib, Middle	1	2024-T42 Clad	0.025	–	–
9	2324011	• Rib, Outbd	1	2024-T42Clad	0.025	–	–

CODES **EFFECTIVITIES**

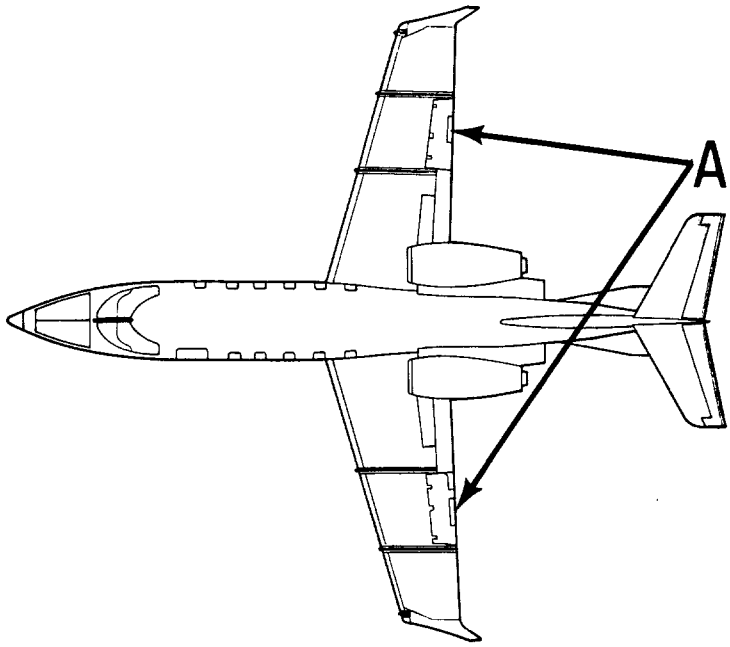
1 23-002 THRU 23-099

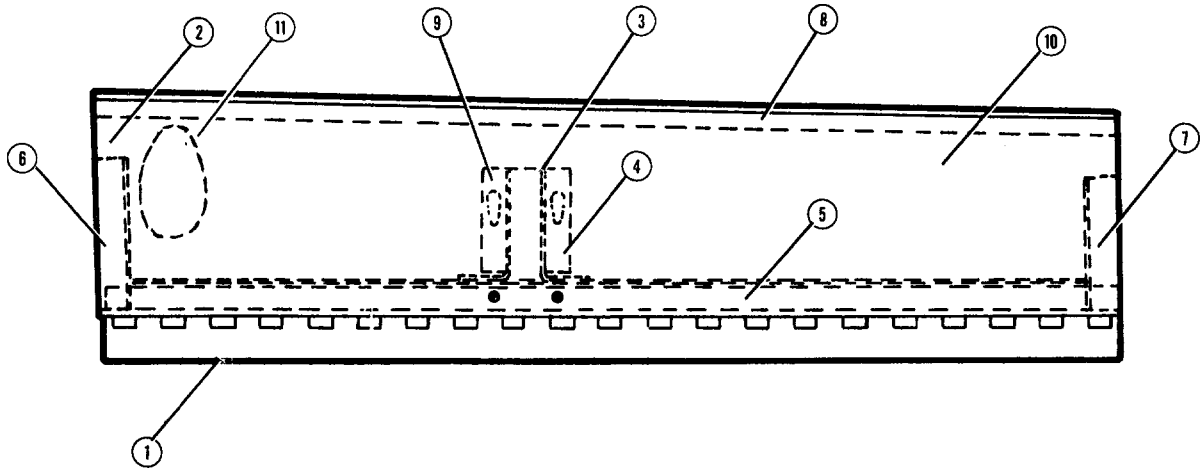
NOTES

[1] Make from MS20001-4-2080

Aileron Balance Tab Repair Index
Figure 1 (Sheet 2 of 2)

AILERON BALANCE TAB - STRUCTURAL IDENTIFICATION





(TYPICAL)

Detail A

Aileron Balance Tab Repair Index
Figure 2 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
1	2324028	Aileron Balance Tab Assy., LH & RH	2	–	–	–	–
2	2324028	• Clip	2	2024-T3 Clad	0.025	–	Replace
3	2324011	• Filler	2	2024-T3 Clad	0.090	–	Replace
4	2324011	• Arm Assy.	3	–	–	–	Replace
	2324011	• • Arm	3	2024-T42 Clad	0.063	–	51-71-00
	2324011	• • Arm	3	2024-T42 Cald	0.063	–	51-71-00
	2324028	• Arm Assy.	4	–	–	–	Replace
	2324028	• • Arm	4	2024-T42 Clad	0.063	–	51-71-00
	2324028	• • Arm	4	2024-T42 Cald	0.063	–	51-71-00
	2324011	• • • Balance Tab Assy.	1	–	–	–	–
5	2324011	• • Spar	1	2024-T42 Clad	0.032	–	Replace
6	2324011	• • Rib, Inbd	1	2024-T42 Clad	0.025	–	Replace
7	2324011	• • Rib, Outbd	1	2024-T42 Clad	0.025	–	Replace
	2324011	• • Clip	1	2024-T3 Clad	0.032	–	Replace
8	2324011	• • Trailing Edge Extrusion	1	S-639	–	–	Replace
9	2324011	• • Rib	1	2024-T42 Clad	0.025	–	Replace
10	2324011	• • Skin, Upper	1	2024-T42 Clad	0.025	–	51-70-02
	2324011	• • Skin, Lower	1	2024-T42 Clad	0.025	–	51-70-02
11	2334001	• Fairing	4	6061-0	0.020	F1 Ext F14-1Int	Replace

CODES	EFFECTIVITIES
1	24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
2	24-155 THRU 24-257; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
3	24-155 THRU 24-257; 25-060, 25-061, 25-064 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-001 AND SUBSEQUENT; 36-001 AND SUBSEQUENT
4	25-002 THRU 25-066 EXCEPT 25-060, 25-061 AND 25-064

Aileron Balance Tab Repair Index
Figure 2 (Sheet 2 of 2)

AILERON BALANCE TAB - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the aileron balance tab or structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

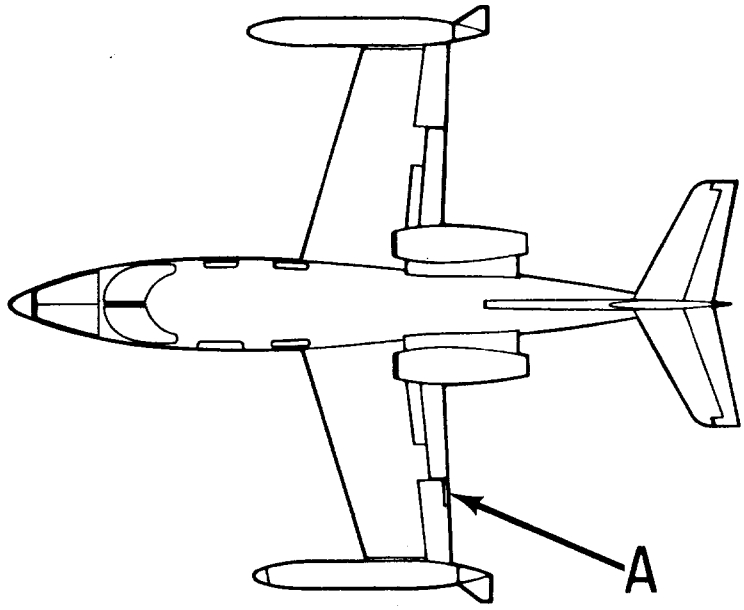
Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

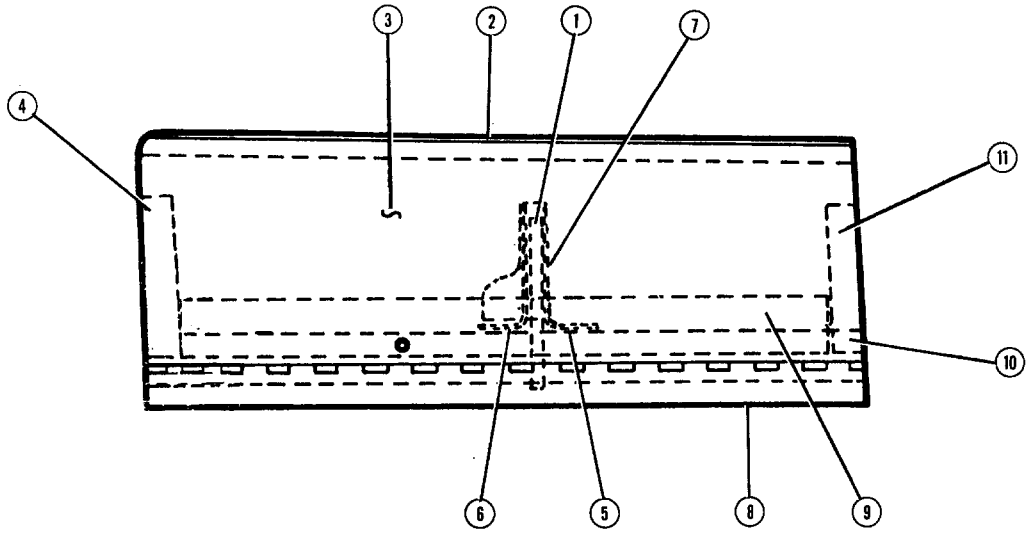
Allowable Material Thickness
Figure 101

AILERON BALANCE TAB - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the aileron system fittings, pulleys, attaching parts and aileron components.

AILERON TRIM TAB - STRUCTURAL IDENTIFICATION





Detail A

Aileron Trim Tab Repair Index
Figure 1 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2324011	Aileron Trim Tab Assembly	1	–	–	–	Replace
1	2324011	• Horn	1	S-634	–	–	51-71-04
2	2324011	• Trailing Edge	1	S-639	–	F7-6	Replace
3	2324011	• Skin, Upper and Lower	1	2024-T3 Clad	0.025	F14-1int F1ext	51-70-02
4	2324011	• Tab Rib, Inbd	1	2024-T42 Clad	0.025	–	Replace
5	2324011	• Angle	1	2024-T3 Clad	0.032	–	Replace
6	2324011	• Angle	1	2024-T3 Clad	0.032	–	Replace
7	2324011	• Rib, Middle	1	2024-T42 Clad	0.025	–	51-70-03
8	2324011	• Hinge Half [1]	1	2024-T42 Clad	0.025	–	Replace
9	2324011	• Tab Spar	1	2024-T42 Clad	0.025	–	Replace
10	2324011	• Hinge Half [2]	1	–	–	–	Replace
11	2324011	• Tab Rib, Outbd	1	2024-T42 Clad	0.025	–	Replace

CODES **EFFECTIVITIES**

1 23-002 THRU 23-099

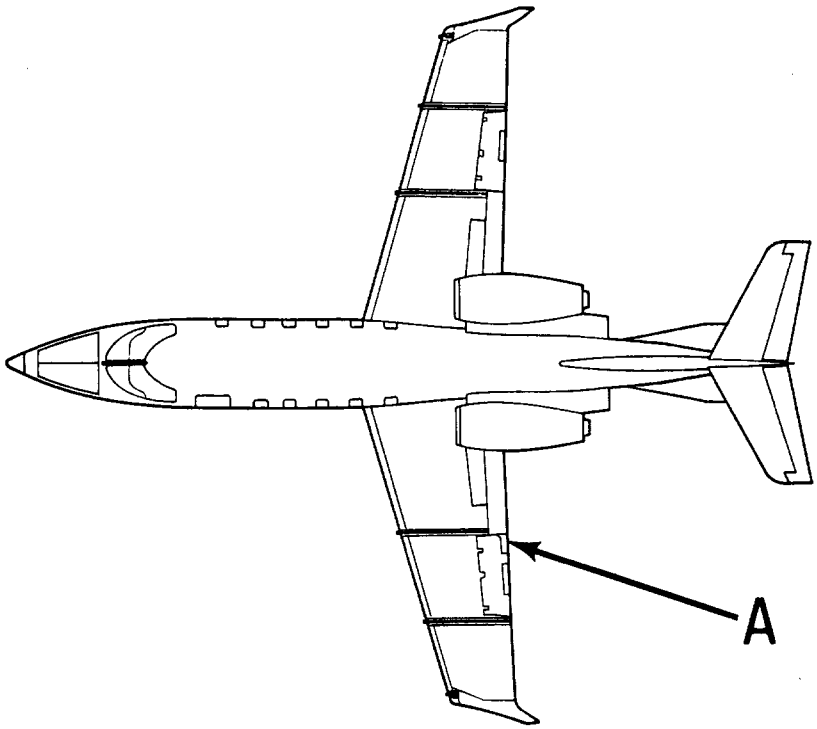
NOTES

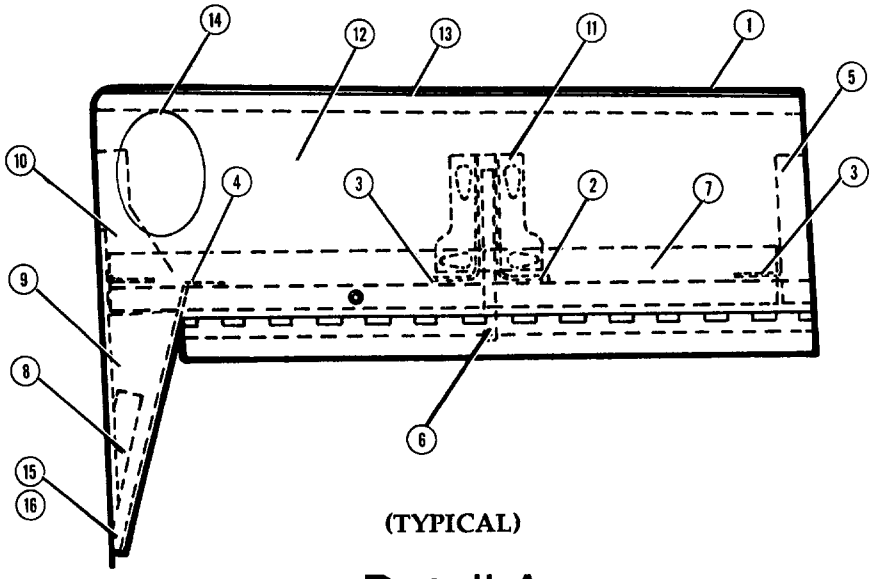
[1] Make from MS20001Y4-1305

[2] Make from MS20001PX4

Aileron Trim Tab Repair Index
Figure 1 (Sheet 2 of 2)

AILERON TRIM TAB - STRUCTURAL IDENTIFICATION





(TYPICAL)

Detail A

Aileron Trim Tab Repair Index
Figure 2 (Sheet 1 of 2)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
1	2324028	Aileron Trim Tab Assembly	1	–	–	–	–
	2324028	• Clip	2	2024-T3 Clad	0.025	–	Replace
	2324011	• Tab Assy.	1	–	–	–	–
2	2324011	• • Angle	1	2024-T3 Clad	0.032	–	Replace
3	2324011	• • Angle	1	2024-T42 Clad	0.050	–	Replace
4	2324011	• • Angle	1	2024-T3 Clad	0.032	–	Replace
5	2324011	• • Tab Rib, Outbd	1	2024-T42 Clad	0.025	–	Replace
6	2324011	• • Horn	1	S-634	–	F5	51-71-00
7	2324011	• • Tab Spar	1	2024-T42 Clad	0.025	–	Replace
8	2324011	• • Weight Support	1	2024-T42 Clad	0.025	–	Replace
9	2324011	• • Tab Channel	1	2024-T42 Clad	0.025	–	Replace
10	2324011	• • Tab Rib, Inbd	1	2024-T42 Clad	0.025	–	Replace
11	2324011	• • Rib	1	2024-T42 Clad	0.025	–	Replace
12	2324011	• • Skin, Upper	1	2024-T3 Clad	0.025	–	51-70-03
	2324011	• • Skin, Lower	1	2024-T3 Clad	0.025	–	51-70-02
13	2324011	• • Trailing Edge Extrusion	1	S-639	–	–	Replace
14	2324001	• Fairing	2	6061-0	0.020	–	Replace
15	2324011	• Balance Weight	3	Antimony Lead	–	–	Replace
16	2324029	• Balance Weight	4	Antimony Lead	–	–	Replace

CODES	EFFECTIVITIES
1	24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 28-001 THRU 28-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	25-002 THRU 25-067 EXCEPT 25-061
3	24-100 THRU 24-357; 25-002 THRU 25-369; 28-001 THRU 28-005; 29-001 THRU 29-004; 35-002 THRU 35-514; 36-002 THRU 36-054
4	25-370 THRU 25-373; 31-001 AND SUBSEQUENT; 35-515 AND SUBSEQUENT; 36-055 AND SUBSEQUENT

Aileron Trim Tab Repair Index
Figure 2 (Sheet 2 of 2)

AILERON TRIM TAB - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the aileron trim tab or structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

TEMPORARY REVISION NO. 57-3

NOTE: This Temporary Revision No. 57-3 supersedes and replaces Temporary Revision No. 57-2. Remove Temporary Revision No. 57-2 from the manual.

MANUAL AFFECTED: Learjet Model 20/30 Series Structural Repair Manual (SRM-4).

FILING INSTRUCTIONS: Insert adjacent to 57-60-20, page 201, dated May 15/92 and retain until further notice.

REASON: Add procedures to replace aileron trim tab hinge, line ream aileron trim tab hinge, and replace aileron trim tab hinge.

INSTRUCTIONS: Add paragraphs B. Replacement of Aileron Trim Tab Hinge Pin, C. Line Ream Aileron Trim Tab Hinge, and D. Aileron Trim Tab Hinge Replacement, to 57-60-20 page 201, as follows:

AILERON TRIM TAB - REPAIR

1. **Repairs**

WARNING: **A CONTROL SURFACE BALANCE CHECK MUST BE PERFORMED FOLLOWING REPAIRS OF THE AILERON TRIM TAB. (REFER TO SECTION II OF THE BASIC LEARJET SERVICE MANUAL FOR MODEL 23, 24 AND 25 SERIES AIRCRAFT. REFER TO CHAPTER 27 OF THE BASIC LEARJET MAINTENANCE MANUAL FOR MODEL 28, 29, 31 35 AND 36 SERIES AIRCRAFT.)**

A. Refer to Chapter 51 typical repairs, and for allowable wear and repair data for the aileron system fittings, pulleys, attaching parts and aileron components.

B. Replacement of Aileron Trim Tab Hinge Pin (See Figure 201.)

(1) Remove attaching parts securing trim tab linkage to wing.

CAUTION: **USE EXTREME CARE NOT TO DAMAGE WING SKIN WHEN REMOVING AND INSTALLING AILERON TRIM TAB HINGE PIN.**

(2) Carefully remove hinge pin from aileron trim tab hinge.

(3) Separate hinge halves.

(4) Using larger hinge pin (P/N 2324011-325), attempt to slide hinge pin through tangs of both hinge halves.

NOTE:
- If hinge pin will slide freely through all tangs of both hinge halves, proceed to step (5).
- If hinge pin will not slide freely through all tangs of both hinge halves, proceed to paragraph C.

(5) Position hinge halves together and carefully insert oversized hinge pin.

(6) Crimp tangs at both ends of hinge to retain hinge pin.

(7) Position trim tab linkage to lower surface of wing and secure with attaching parts.

(8) Measure aileron trim tab free play. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.) If free play limits can not be obtained, replace hinge per paragraph D.

C. Line Ream Aileron Trim Tab Hinge

CAUTION: USE EXTREME CARE NOT TO SCRATCH, DENT, OR DAMAGE AILERON TRIM TAB WHEN POSITIONING IN VISE OR WHILE REAMING HINGE HALF.

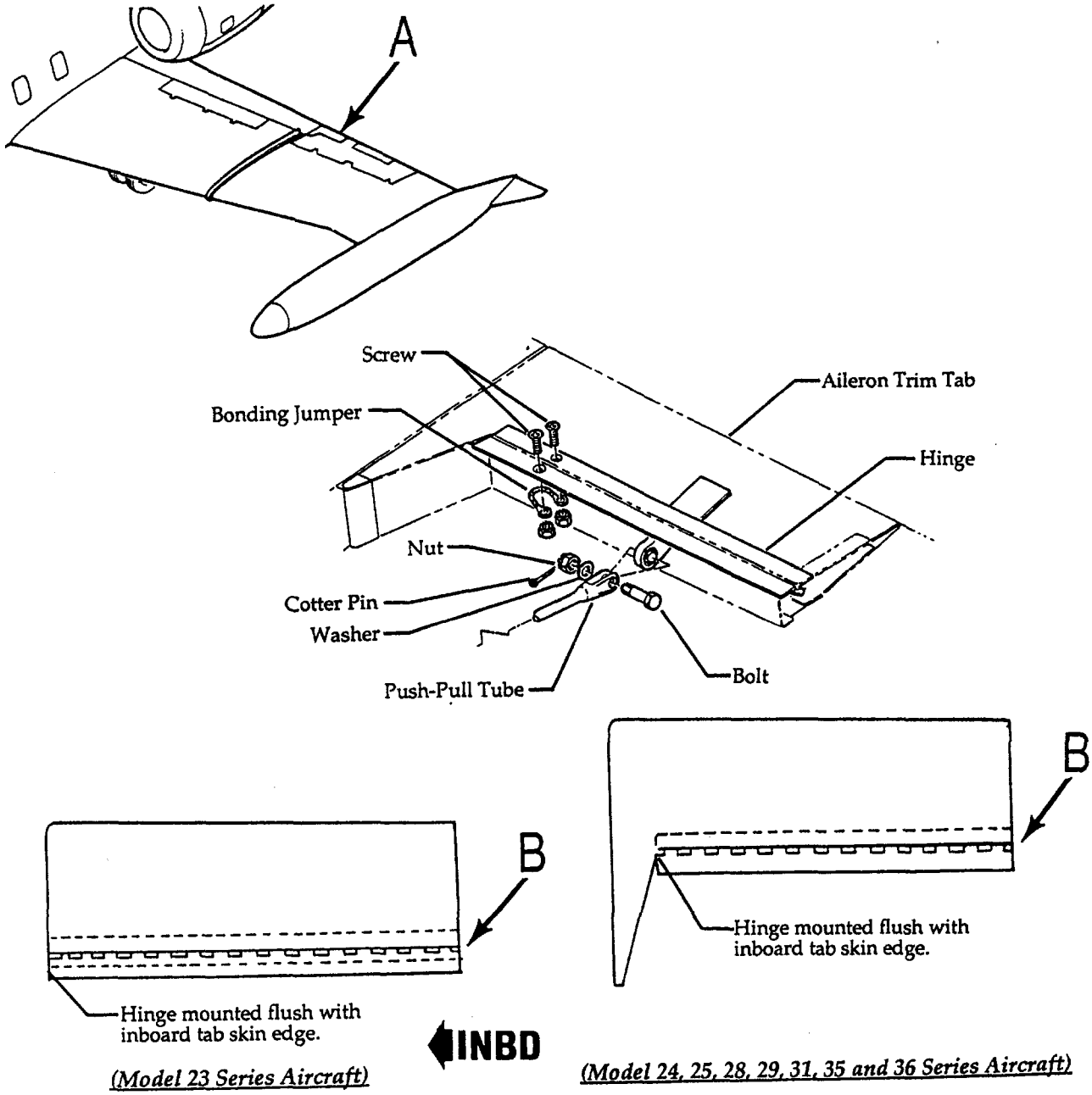
(1) Place aileron trim tab in vise to ream hinge half.
(2) Secure aileron in full up position to ream hinge half.

CAUTION: MAINTAIN A SLOW DRILL MOTOR SPEED AND SUPPORT DRILL SHAFT TO AVOID HARMONIC VIBRATION.

(3) Using a 4-inch, then a 6-inch and finally a 20-inch No. 40 (0.098 dia.) drill, slowly ream out holes in tangs of both hinge halves.
(4) Position hinge halves together and carefully insert a 2324011-325 hinge pin.
(5) Crimp tangs at both ends of hinge to retain hinge pin.
(6) Measure aileron trim tab free play. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.) If free play limits can not be obtained, replace hinge. (Refer to Replacement of Aileron Trim Tab Hinge, this section.)

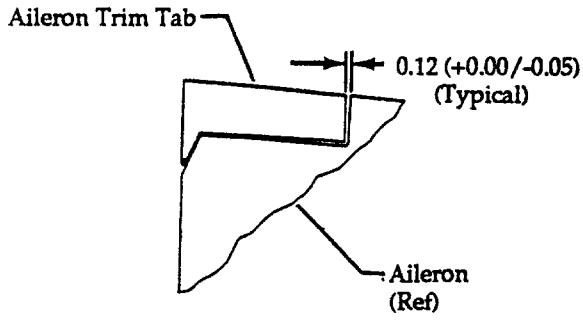
D. Replacement of Aileron Trim Tab Hinge (See Figure 201.)
(1) Remove aileron from wing. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.
(2) Disconnect trim tab actuator push-pull tube and bonding jumper from trim tab.
(3) Remove hinge pin and separate hinge halves.
(4) Remove hinge halves from aileron and trim tab by drilling out rivets using a No. 30 (0.128 dia.) drill.
(5) Position new hinge assembly (P/N 2324011-322) on trim tab between spar flange and skin.
(6) Align hinge flush with inboard tab skin edge and with centerline of hinge 0.06 inch forward of leading edge of skin.
(7) Mark rivet locations on inboard and outboard ends of hinge half.
(8) Remove hinge assembly and drill a No. 30 (0.128 dia.) hole at each marked location.
(9) Position hinge assembly to trim tab and cleco in place. Using trim tab skin rivet holes as a pattern, drill a No. 30 (0.128 dia.) hole in hinge half at each skin hole location, except where the bonding jumper attaches. Drill a No. 19 (0.166 dia.) hole at jumper attach point.
(10) Secure hinge assembly to trim tab with rivets (P/N MS20426AD4-6).
(11) Attach opposite hinge half (P/N 2324011-324) using hinge pin (P/N 2324011-325). Crimp end tangs of 2324011-322 hinge half to secure pin. Ensure hinge halves are free of binding.
(12) Position trim tab on aileron with hinge assembly between spar flange and skin. Adjust trim tab with proper clearances between trim tab and aileron. (See Figure 201.)
(13) Place a straightedge on aileron trailing edge and adjust aileron trim tab until both the aileron and trim tab trailing edges are aligned.
(14) With trim tab properly positioned, mark rivet locations at inboard and outboard ends of hinge assembly. Remove trim tab from aileron and drill a No. 30 (0.128 dia.) hole at each location.
(15) Position trim tab to aileron and cleco in place. Using remaining holes in aileron as a pattern, drill a No. 30 (0.128 dia.) hole at each location except the fourth from the outboard end of hinge. Drill a No. 19 (0.166 dia.) hole at this location for bonding jumper attachment.
(16) Secure trim tab to aileron with rivets (P/N MS20426AD4) and connect bonding jumper to trim tab.
(a) Check electrical resistance between trim tab and aircraft structure. Resistance shall not be greater than the value specified in Chapter 20 of the applicable Learjet Wiring Manual.
(17) Install push-pull tube.

(18) Check aileron balance and install aileron on aircraft. (Refer to Section II of the basic Learjet Service Manual for Model 23, 24 and 25 Series Aircraft. Refer to Chapter 27 of the basic Learjet Maintenance Manual for Model 28, 29, 31, 35 and 36 Series Aircraft.)

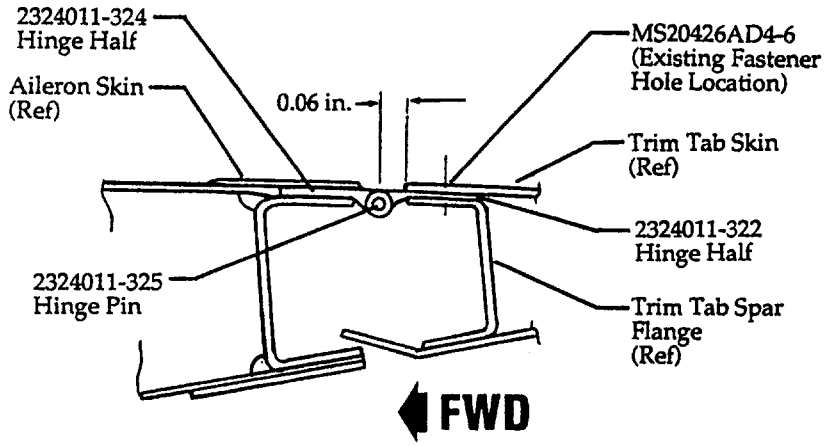


Detail A

Alieron Trim Tab Hinge Replacement
Figure 201 (Sheet 1 of 2)



(TRIM TAB CLEARANCES)



(VIEW LOOKING INBOARD)

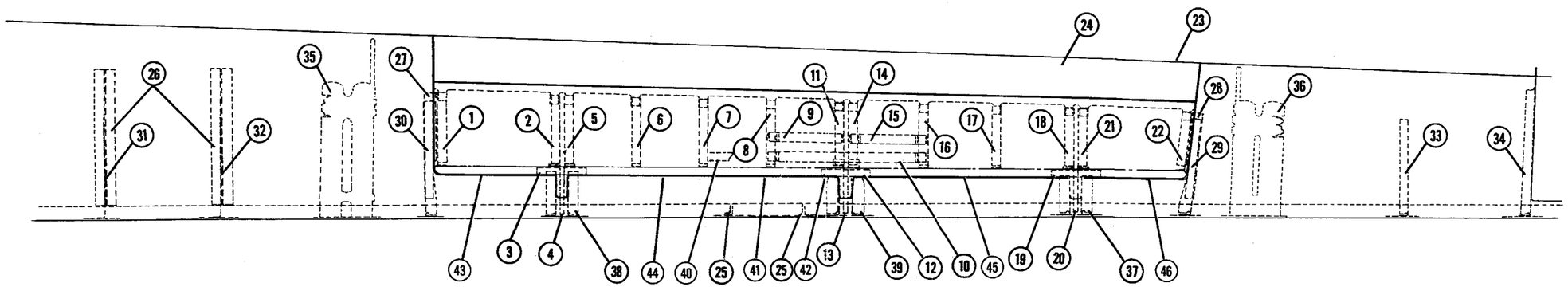
Detail B

Alieron Trim Tab Hinge Replacement
Figure 201 (Sheet 2 of 2)

AILERON TRIM TAB - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the aileron system fittings, pulleys, attaching parts and aileron components.

NOTE: Please see the TEMPORARY REVISION that revises this page.



Spoiler Repair Index
Figure 1 (Sheet 1 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
	2322510	Spoiler Trailing Edge Structure, LH & RH	1	–	–	–	–
	2322510	• Spoiler Assy.	2	–	–	–	–
	2422510	• Spoiler Assy.	3	–	–	–	–
1	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
2	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
3	2322510	• • Filler	1	2024-T3 Clad	0.020	F4-1	Replace
	2322510	• • Angle	1	2024-T3 Clad	0.040	F4-1	Replace
4	2322510	• • Arm Assy., Inboard	1	–	–	–	–
	2322510	• • • Sleeve	1	4130 Steel [2]	–	–	51-71-00
	2322510	• • • Clip, Bonding Jumper	1	2024-T42 Clad	0.025	–	Replace
	2322510	• • • Arm Hinge, Inboard	1	2024-T4	0.312	–	51-71-00
	2322510	• • Gap Cover (3 ea.)	5	2024-T3	0.063	–	Replace
	2322510	• • Angle	1	2024-T3	0.040	–	Replace
	2422512	• • Shim, Laminated (Max. 0.032)	4	[1]	–	–	Replace
5	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
6	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
7	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
8	2322510	• • Rib	2	2024-T42 Clad	0.032	F4-1	Replace
	2422510	• • Rib	3	2024-T42 Clad	0.032	–	Replace
	2422510	• • Clip	3	2024-T3 Clad	0.032	–	Replace
9	2422510	• • Intercostal, Inboard	3	2024-T42 Clad	0.032	–	Replace
	2422510	• • Clip	3	2024-T3 Clad	0.032	–	Replace
10	2422510	• • Angle Support	3	4130 Steel [2]	0.050	–	Replace
11	2422510	• • Rib	1	2024-T42 Clad	0.032	–	Replace
12	2322510	• • Filler	1	2024-T3 Clad	0.020	F4-1	Replace
	2322510	• • Angle	1	S-575	–	F4-1	51-70-04
13	2322510	• • Hinge Arm, Center	2	2024-T42 Clad	0.312	F4-1	51-71-00
	2422510	• • Hinge Arm, Center	17	2024-T42 Clad	0.312	F4-1	51-71-00
	2422541	• • Hinge Arm, Center	18	4130 Steel [2]	0.312	F4-1	51-71-00
	2422512	• • Shim, Laminated (Max. 0.032)	4	[1]	–	–	Replace
	2322510	• • Angle	1	S575	–	F4-1	Replace
14	2422510	• • Rib	1	2024-T42 Clad	0.032	–	Replace
	2422510	• • Cam	1	S634	–	–	Replace
	2422510	• • Rub Block	3	Phenolic [4]	0.025	–	Replace
15	2422510	• • Intercostal, Outboard	1	2024-T42 Clad	0.032	–	Replace
16	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
17	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
18	2322510	• • Rib	1	2024-T42 Clad	0.032	F4-1	Replace
	2322510	• • Angle	1	2024-T3 Clad	0.040	F4-1	Replace
19	2322510	• • Filler (3 ea.)	11	2024-T3 Clad	0.040	F4-1	Replace
	2422510	• • Strap (3 ea.)	12	–	–	–	Replace

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Figure 1 (Sheet 2 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
20	2322510	• • Arm Assy., Outboard	1	–	–	–	51-71-00
	2322510	• • • Sleeve	1	4130 Steel [2]	9/16	–	51-71-00
	2322510	• • • Clip, Bonding Jumper	1	2024-T42 Clad	0.025	–	Replace
	2322510	• • • Arm Hinge, Outboard	1	2024-T4	0.312	–	51-71-00
	2422512	• • Shim, Laminated (Max. 0.032)	4	[1]	–	–	Replace
	2322510	• • Angle	1	2024-T3 Clad	0.040	F4-1	Replace
21	2322510	• • Rib	1	2024-0 Clad	0.032	F4-1	Replace
22	2322510	• • Rib	1	2024-0 Clad	0.032	F4-1	Replace
23	2322510	• • Trailing Edge	1	S-641	–	–	Replace
	2322510	• • Skin, Lower	11	2024-T3 Clad	0.040	F4ext F4-1int	51-70-02
	2322510	• • Skin, Lower	12	2024-T42 Clad	0.040	F4ext F4-1int	51-70-02
24	2322510	• • Skin, Upper	9	2024-T3 Clad	0.040	F4ext F4-1int	51-70-02
	2422510	• • Skin, Upper	10	2024-T3 Clad	0.040	F4ext F4-1int	51-70-02
25	2322510	• Angle, Stiffener (2 ea.)	14	2024-T42 Clad	0.063	F4-1	Replace
	2322510	• Angle, Stiffener (1 ea.)	8	2024-T42 Clad	0.063	F4-1	Replace
26	2322510	• Capstrip	7	S-558	–	–	Replace
27	2322510	• Stop Plate	1	2024-T3 Clad	0.125	F4-1	Replace
28	2322510	• Stop Plate	1	2024-T3 Clad	0.100	F4-1	Replace
29	2322510	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
30	2322510	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
31	2322510	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
32	2322510	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
	2322510	• Shim, Laminated (Max. 0.063)	1	[1]	–	F4-1	Replace
	2322510	• Shim, Laminated (Max. 0.040)	1	2024-T42 Clad	0.003	F4-1	Replace
33	2322510	• Rib	1	2024-T42 Clad	0.040	F4-1	Replace
34	2322510	• Rib Assy., Flap Slot Closing	1	–	–	–	–
	2322510	• • Shim	6	2024-T3 Tapered	0.063	F4-1	Replace
	2322510	• • Rib, Flap Slot Closing	1	2024-T42 Clad	0.050	F4-1	Replace
	2322510	• • Channel Seal Retainer	1	302/304 A Cres	0.016	F4-1	Replace
	2322511	• Support Instl., Inboard Flap Track	–	–	–	–	–
35	2322511	• • Cap, Aft (Forging)	1	2014-T6	–	–	Replace
	2322511	• • Cap, Fwd (Forging)	1	2014-T6	–	–	Replace
	2322513	• • Button	1	Nylon	0.390	–	Replace
	2322511	• • Support Assy.	1	–	–	–	–
	2322511	• • • Track, Nose Roller	1	–	0.312	–	51-71-00
	2322511	• • • Support, Outer	1	Forging	–	–	51-71-00
	2322511	• • • Support, Inner	1	Forging	–	–	51-71-00
	2322512	• • Shim, Laminated (Max. 0.032)	1	[1]	0.032	F4-1	Replace
	2322512	• • Shim	1	2024-T3 Tapered	0.080	F4-6	Replace
	2322512	• Support Instl., Outbd Flap Track	–	–	–	–	–

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Figure 1 (Sheet 3 of 5)

ITEM NO.	DWG. NO.	DESCRIPTION	EFF.	MATERIAL	GAGE	FINISH CODE	REPAIR FIG. NO.
36	2322512	• • Shim, Laminated (Max. 0.032)	1	[1]	0.032	F4-1	Replace
	2322512	• • Cap, Aft (Forging)	1	2014-T6	–	–	Replace
	2322512	• • Cap, Fwd (Forging)	1	2014-T6	–	–	Replace
	2322513	• • Button	1	Nylon	0.390	–	Replace
	2322512	• • Support Assy.	1	–	–	–	51-71-00
	2322512	• • • Track, Nose Roller	1	4130 Steel [2]	–	–	51-71-00
	2322512	• • • Support, Outer	1	2014-T6	–	–	51-71-00
	2322512	• • • Support, Inner	1	2014-T6	–	–	51-71-00
	2322512	• • Shim	1	2024-T3 Tapered	0.080	F4-6	Replace
37	2322514	• Hinge Bracket, Outboard	1	2024-T42 Clad	0.063	–	51-71-00
	2322514	• Hinge Bracket, Outboard	1	2024-T42 Clad	0.063	–	51-71-00
38	2322514	• Hinge Bracket, Inboard	1	2024-T42 Clad	0.080	–	51-71-00
	2322514	• Hinge Bracket, Inboard	1	2024-T42 Clad	0.080	–	51-71-00
39	2422514	• Hinge Bracket, Inboard	1	4130 Steel [3]	0.063	–	51-71-00
	2422514	• Hinge Bracket, Inboard	1	4130 Steel [3]	0.063	–	51-71-00
40	2322510	• Angle	13	2024-T42 Clad	0.032	F4-1	Replace
41	2322510	• Angle, Stiffener	14	2024-T42 Clad	0.063	F4-1	Replace
42	2322510	• Angle, Stiffener (LH Only)	15	2024-T42 Clad	0.063	F4-1	Replace
	2422510	• Angle, Stiffener (LH Only)	16	4130 Steel [2]	0.050	–	Replace
	2322510	• Angle, Stiffener (RH Only)	15	2024-T42 Clad	0.080	F4-1	Replace
	2422510	• Angle, Stiffener (RH Only)	16	4130 Steel [2]	0.050	–	Replace
43	2322510	• Angle, Inboard	12	2024-T3 Clad	0.040	F4-1	Replace
44	2322510	• Angle, Center Inboard	12	2024-T3 Clad	0.040	F4-1	Replace
45	2322510	• Angle, Center Outboard	12	2024-T3 Clad	0.040	F4-1	Replace
46	2322510	• Angle, Outboard	12	2024-T3 Clad	0.040	F4-1	Replace

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Figure 1 (Sheet 4 of 5)

CODES	EFFECTIVITIES
1	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
2	23-002 THRU 23-099; 24-100 THRU 24-297; 25-002 THRU 25-183
3	24-298 THRU 24-357; 25-184 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
4	24-230 THRU 24-357; 25-062 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
5	23-002 THRU 23-099; 24-100 THRU 24-109
6	23-002 THRU 23-099; 24-100 THRU 24-356
7	23-057 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
8	23-090 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
9	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-272
10	25-273 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 THRU 31-029; 35-002 THRU 35-664; 36-002 THRU 36-063
11	23-002 THRU 23-099; 24-100 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 THRU 31-029; 35-002 THRU 35-664; 36-002 THRU 36-063
12	31-030 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
13	23-002 THRU 23-099; 24-100 THRU 24-229 EXCEPT 24-218
14	23-002 THRU 23-089
15	23-090 THRU 23-099; 24-100 THRU 24-297
16	24-298 THRU 24-357; 25-002 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 AND SUBSEQUENT; 36-002 AND SUBSEQUENT
17	24-298 THRU 24-357; 25-184 THRU 25-373; 28-001 THRU 28-005; 29-001 THRU 29-004; 31-001 AND SUBSEQUENT; 35-002 THRU 35-558, 35-589 THRU 35-601; 36-002 THRU 36-053, 36-055
18	35-559 THRU 35-588, 35-602 AND SUBSEQUENT; 36-054, 36-056 AND SUBSEQUENT

NOTES

1> Laminated shim stock, 0.002 or 0.003 lamination per MIL-S-22499 Type 1 Class 1 or Class 2 1145-H19 aluminum sheet.

2> Condition Normalized

3> Condition Annealed

4> Per MIL-P-15035

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Figure 1 (Sheet 5 of 5)

SPOILER - ALLOWABLE DAMAGE

1. ALLOWABLE DAMAGE LIMITS

NOTE: All dimensions are in inches unless otherwise specified.

A. Fasteners
   (1) Loose or failed rivets are not allowed. A loose or failed rivet can cause increased stress concentrations on the remaining rivets and lead to progressive joint failure. A careful inspection must be performed to ensure that joint failure has not spread from the area of the loose or failed rivet. (Refer to Chapter 51 for definition of rivet failure.)
   (2) Loose or failed screws are not allowed. A loose or failed screw can cause increased stress concentrations on surrounding screws and lead to progressive joint failure. A careful inspection must be performed to ensure that the joint failure has not spread from the area of the loose or failed screw.

B. Cracks
   (1) Cracks in any fitting or forging are not allowed. Cracked fittings or forgings must be replaced.
   (2) Cracks in components other than fittings and forgings are considered allowable if properly repaired, and refinished in accordance with Chapter 51.

C. Deformation
   (1) Deformation of the spoiler or structure is not allowed.

D. Corrosion (See Figure 101.)
   (1) Corrosion damage is permissible if the affected area is properly repaired, refinished in accordance with Chapter 51, and these repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be repaired or replaced if corrosion repair reduces the original material thickness more than specified.

E. Dents
   (1) Dents are permissible, if smooth and without abrupt changes in contour, do not exceed 0.100 inch (2.54 mm) in depth, do not exceed 10% of total surface area in one (1) square foot, and are not closer than 0.50 inch (12.7 mm) to any rivet or structural area.
   (2) Dents are not allowed if sharp, a fracture of the skin has occurred, greater than 0.100 inch (2.54 mm) in depth, exceeds 10% of total surface area in one (1) square foot, and are closer than 0.50 inch (12.7 mm) to a rivet or structural area. Such dents shall be repaired or the component replaced.

F. Scratches (See Figure 101.)
   (1) Scratches are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if scratches reduce the original material thickness by more than specified.

G. Nicks (See Figure 101.)
   (1) Nicks are permissible if the affected area is sanded smooth, refinished in accordance with Chapter 51, and the repairs do not reduce the original material thickness more than specified. (Refer to Chapter 51 for protective treatment procedures.)
   (2) Structural components must be replaced or repaired if nicks reduce the original material thickness more than specified.

H. Fittings and Forgings
   (1) Fittings or forgings must be replaced if cracked or if fitting hole (non-bushed) tolerance exceeds the allowable limits. (Refer to Chapter 51.)
   (2) Fittings or forgings with bushing shall be repaired.

Nominal Thickness (Inch)	Minimum Thickness (Inch)
0.016	0.0135
0.020	0.0175
0.025	0.0225
0.032	0.0295
0.040	0.037
0.050	0.046
0.063	0.059
0.071	0.067
0.080	0.076
0.100	0.095
0.125	0.120
0.190	0.180
0.250	0.237

Allowable Material Thickness
Figure 101

SPOILER - REPAIR

1. APPROVED REPAIRS
   A. Refer to Chapter 51 for typical repairs, and for allowable wear and repair data for the spoiler fittings and attaching parts.